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MOTOR AGE

Montana Listens to the Motor Horn

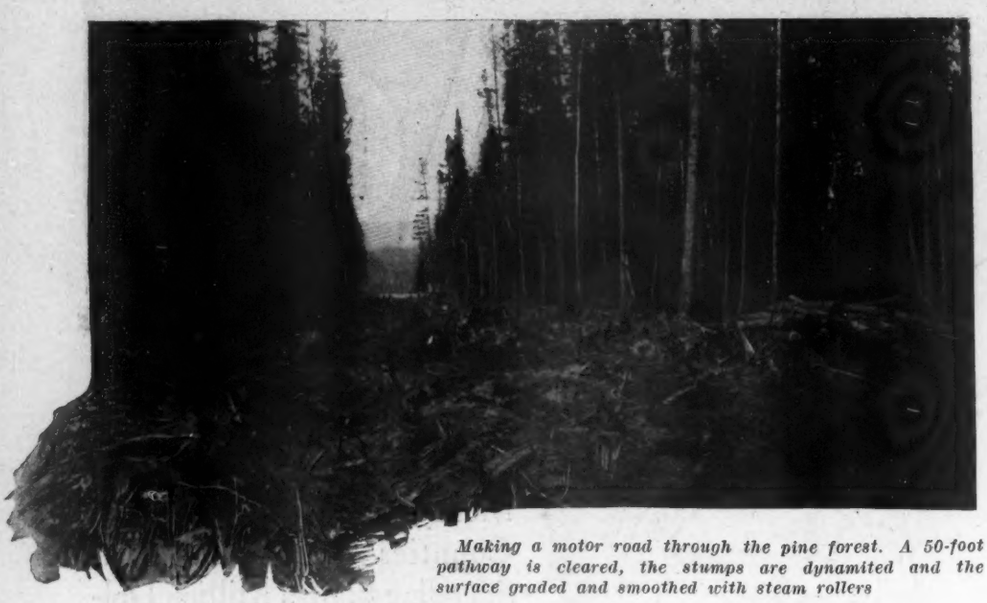
State Refuses To Advance Money To Build Roads, So Counties Are Themselves Spending Half a Million Dollars To Construct Highways That Will Attract Eastern Tourists, Opening up a Scenic Paradise in the Far West

By Darwin S. Hatch

MONTANA has awakened to its opportunities. A tourists' paradise, with two of the great national parks at its borders and needing only good roads to bring the eastern motorists to its gates, the people of the state have seen the chance for development offered in the beauty of its mountains and forests. Without the slightest aid from the state funds, the citizens are spending more than half a million dollars of county money in making motor roads. This sum is augmented by funds voluntarily subscribed by the people themselves, through their local commercial and motor clubs. Highways are being created from one boundary to the other through the most attractive portions of the state where a few months ago there only were forest trails or at best only the roughest of wagon roads.

Montana is blessed by nature in a peculiar way above its sister states. It is particularly favored by nature as a tourists' paradise, for practically nowhere else can be found the great diversity of scenery that may be viewed there. Broad prairies, rolling foot-

Into the heart of its mountain fastnesses the booster spirit of the state is pushing the work of making motor roads where only the nimble feet of the mountain goat were wont to travel.



Making a motor road through the pine forest. A 50-foot pathway is cleared, the stumps are dynamited and the surface graded and smoothed with steam rollers

hills, rich plains dotted with herds of cattle or flocks of sheep, beautiful valleys, vast forests of pine, and then the rugged majesty of the Rockies, may all be seen in a day's ride. Tracks of deer and bear and an occasional glimpse of a Rocky Mountain goat on some high peak give promise of game, while the crystal streams abound in trout eager for the lure of rod and line.

Within Montana's confines at the north is the newest of the nation's playgrounds, the Glacier national park, and at the southern boundary of the state is the better known Yellowstone national park. A little over a year ago congress set aside the Glacier park as a national institution, but it is already becoming a Mecca for tourists. It embraces more than 1,400 square miles of the Rocky mountains, extending north from the main line of the Great Northern Railway to the Canadian border, a distance of 60 miles, and it is about 50 miles in width from the Blackfeet Indian reservation on the east to the north fork of the Flathead river on the western border. In it are more than sixty glaciers and rising beyond them to a height of over 10,000 feet are numerous snowcapped mountain peaks, down whose sides the enduring fields of ice pour their cold waters over hundreds of cataracts and rapids into long ribbonlike lakes in the pineclad valleys.

New Glacier Park

The very names of the lakes and mountains in the park have a wizardry about them that makes the tourist brave the mountain trails to visit them. Iceberg lake is so named because the great floes of ice that break away from the glacier are falling into the lake at its foot all through the summer. Avalanche basin, and nestling at its lower end, Avalanche lake, get their names from the terrific snowslides that dash into them. Upper and lower Two-Medicine Lakes, holy ground of the Indian; Rising Wolf mountain; Red Eagle glacier; Gunsight pass; Almost-a-Dog and Going-to-the-Sun mountains are a few of picturesque names with which the park abounds.

Yellowstone National Park

Abutting on the southern boundary of Montana is the older and larger Yellowstone national park, more abundant in the natural freaks of geysers and terraces and more fantastic in coloring. More of a wonderland in its aberrations of nature, it does not rival the wild beauty of the mountain peaks and passes of the Glacier park.

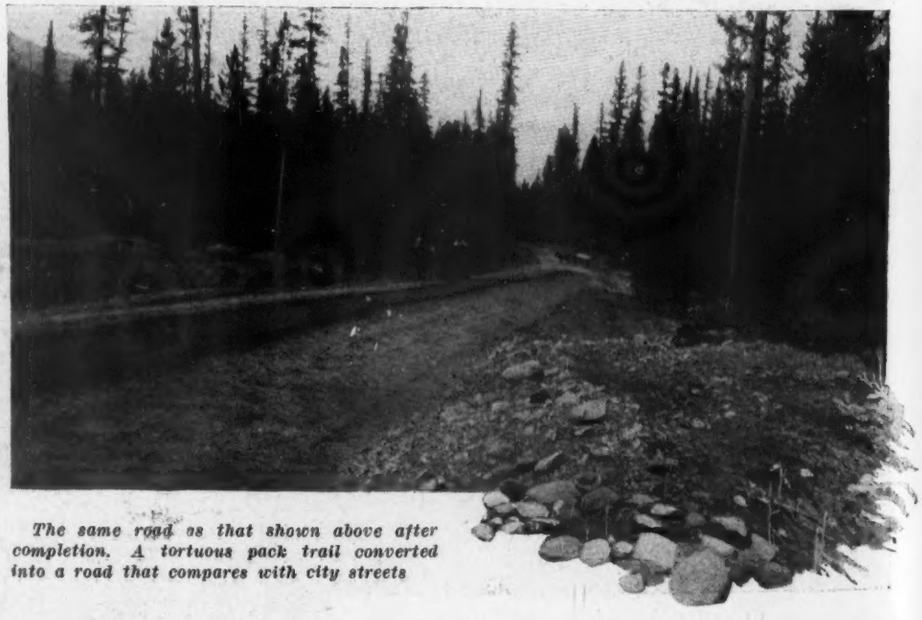
For any one living east of the Mississippi river a motor trip through the states of Minnesota, North Dakota and Montana will prove an eye-opener in more ways than one. The thing that most impresses the motorist through the northwest is the wonderful development in road-building that is going on even in the sparsely-settled districts and where conditions for good roads would seem to be most discouraging.

The state of Montana carries off the banner for the possession of public-spirited citizens, for practically every resident is a booster in every sense of the word. Montana people are anxious for the development of the state and for the utilization of its wonderful resources. They realize that, first of all, means of transportation are necessary and are building roads that are designed for the newest and most efficient agent of transportation, the motor car.

Road Work in Montana

Through the virgin forests of pine that clothe its hills, Montana is hewing pathways 50 feet in width, grading them and covering them with a surface of its native rock, rolling them with massive steam rollers and converting what were a few months ago but mere tortuous pack trails into motor roads that compare very favorably with the city boulevards. Into the heart of its mountain fastnesses the booster spirit of the state is pushing the work of making motor roads where only the nimble feet of the mountain goat were wont to travel.

Where it is possible these new-made roads are wide, but in the mountains it will be years before they can be widened enough to permit two vehicles to pass except at rare intervals. All through the mountains of the state wind the narrow but hard and smooth roadbeds, always on the brink of some canon with the cliffs rising sheer on one side and a steep precipice dropping to a roaring river, sometimes hundreds of feet below. In spite of the excellence of the roadbed, the narrowness of the shelf in the mountainside which forms the roadway, the sharp turns and the steep declivities require the utmost caution on the part of the driver. The man at the wheel of a motor car on these mountain roads often will have little opportunity to enjoy the grandeur of the mountain peaks rising at his side to pierce the clouds that clothe their snowcapped summits or to join his companions in



The same road as that shown above after completion. A tortuous pack trail converted into a road that compares with city streets

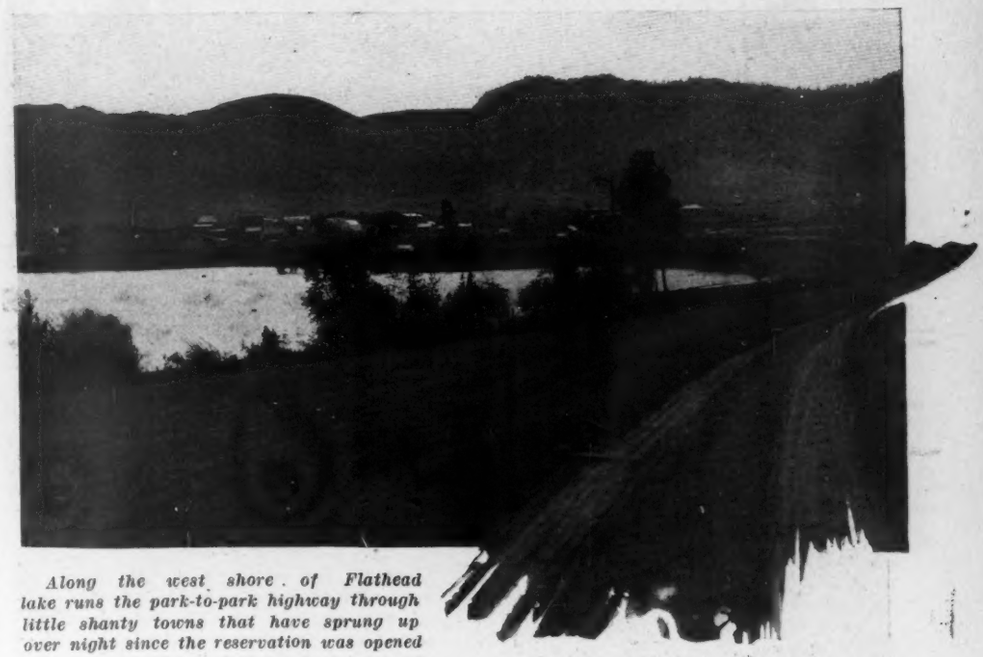
wonder at the beauty of a silver waterfall flashing in the sun. But the mountain scenery may be enjoyed without fear of accident if the motorist have confidence in his driver and brakes.

Rapid Road Development

Aside from the natural obstacles offered to the building of motor roads in a large part of the state, the development of the roads is remarkable from another standpoint. Road building for motor traffic is a new experience in Montana. It only has been within the past few months that interest in road-making was really aroused. While there had been spasmodic attempts at road-making in various parts of the state, particularly in the vicinity of the larger cities, there had been little organized effort toward a connected line of roadways suitable for motor travel previous to the trip made this spring by the pathfinding car that laid out the route over which the Twin-City to Helena tour was conducted last July.

The prospect of the tour, together with the personal efforts of Louis W. Hill, president of the Great Northern Railroad, and other men interested in the development of the northwest, and who offered prizes for the best roadwork in the different counties along the route, aroused a fierce competition among the various sections. When the Twin-City tourists did go through there were evidences on nearly every mile of the route of the strenuous efforts that had been made to prepare the roads for their inspection.

In more than one instance work on the roads was carried on up to the very instant of the tourists' passing and the cars were held up while a log drag or a massive steam roller was gotten out of the way, the workers smiling their thanks for the cries of "Well done" from the occupants of the cars. Once, near Kalispell, the portion of the tourists who continued their run to the Glacier national park were halted by a red flag while a final stump that barred their progress was blown up by the road gang that had been working all night to prepare the way.



Along the west shore of Flathead lake runs the park-to-park highway through little shanty towns that have sprung up over night since the reservation was opened

Signs of Future Progress

The most marvelous improvement in the roads of Montana and the other states to the east of it was accomplished in a very short time and it may be taken as an encouraging sign of future progress that when the tourists had passed the rollers and drags were pulled back into the roads and dynamiting of stumps and rocks recommenced with as much energy as before. Every little town and city has its motor club or its commercial club from which the roadbuilding activity gets its vital force, and it is to these associations that the most of the credit is due.

The drop from the northward to Fort Benton through the beautiful Teton valley will be remembered as one of the most delightful experiences of a trip through Montana. If the motorist is fortunate enough to make the trip through the valley at twilight he seems to be traversing an enchanted land with ever changing vistas of hill and river and the gradually deepening colors as the light begins to fade. The long, gradual slope from the highlands to the valley below is over a gently winding road of crushed stone which is kept as smooth as a floor and for miles the car may be allowed to coast down the easy decline, the resistance of the dead motor being a sufficient brake.

But not all the Montana roads are good roads; in fact, off the main line of travel many of the roads are mere mountain trails or forest paths which are almost impassable for motor cars. In the prairie country there is very little improvement, for there is little necessary. The winding roads over the rolling plains are usually two smooth wheel tracks on the hard ground, and follow the old trails made by the buffalo. Such few streams as there are are usually either easily fordable or crossed by rude wooden bridges. Between Malta and Havre the familiar gumbo road is found. This is the finest kind of a dirt road in dry weather, but when it is wet a car will sink almost to its hubs. In rainy weather it will be necessary to take to what is known as the flats.

Not All Good Roads

Deep coulees and unexpected washouts make careful driving necessary. At rare intervals a herdsman's or squatter's shanty may be seen, but these may be 20 miles apart and are really deserted. The trail often becomes dim and hard to follow, and if it is lost the motorist is due for a night in the hills. Sometimes there are branching trails which seem to lead nowhere in particular, mak-

In the Glacier National Park by glacial streams through the Cars are admitted but the rough where the pack trails are crossed spray of some silvery cascade. pack trails forbid their use

Angel Hill, a 2-mile drop that formerly deserved a worse name, has been changed at a cost of $5,000 to a gentle slope that is comparatively safe. A tribute to the management of the Flathead Motor Club of Kalispell

ing the service of a guide almost absolutely necessary.

Some of the most extensive work has been accomplished by the Flathead Motor Club, of Kalispell, Mont. In Flathead county is presented as great a variety of country as can be found anywhere. Rolling prairie is succeeded by the rougher territory near Flathead lake and this in turn gives way to mountains, the road following the winding canyons through which the Flathead river flows. When the route enters the pine forests on the mountain sides road-making becomes a matter of not only providing a roadway among the mountains, but of felling the trees, removing the stumps and massive rocks and finally of leveling the road. The Kalispell club has accomplished the greater part of these different kinds of road work, carrying a motor road from the southern confines of the county to the border of the Glacier national park at the north.

Work of Kalispell Citizens

The road through the mountain passes has been equipped with a series of signboards pointing out the steep grades and sharp turns where cautious driving is necessary and even limiting the speed in places.

One hundred and thirty thousand dollars were spent in Flathead county alone on the roads and bridges this year. Most of this represented the transformation of rocky wagon trails through the mountains and forests into excellent motor roads. Thirty thousand dollars of the total was expended on the construction of 15 miles of new road. The cost of the road building through the mountains was in no place small, but it varied somewhat with the character of the country.

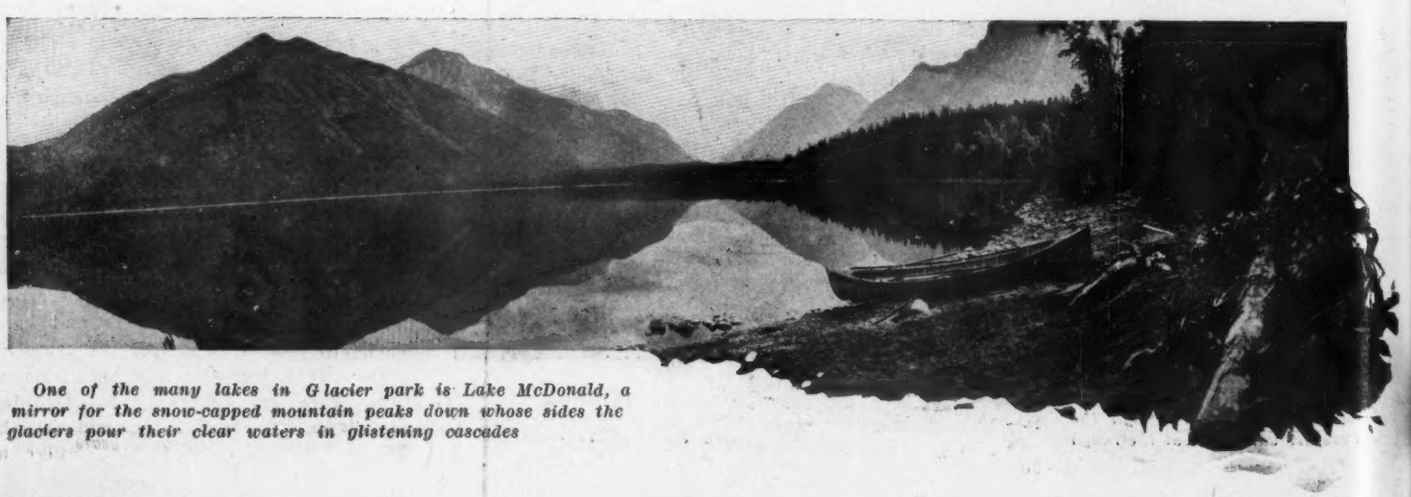
What Montana Roads Cost

Where the road had to be cut along the canyons out of the face of the living rock each mile meant a vast amount of work and an expenditure of over $3,000, while through the side hills where the tops of the ridges were scraped off and dumped into the valleys, in the miles of alternating cut and fill the cost piled up at the rate of $1,000 for every mile. A like amount was spent in the construction of each mile of the forest roads. Forest roadwork on the mountain sides required first the clearing of the right of way by hewing down and dragging away the massive trees; then the removal of the stumps and great boulders that obstructed the way, a feat that only dynamite could accomplish; after this the sadly torn up ground must be levelled, the sharp grades made easier, swales crossed on corduroy, and the whole finally covered with crushed stone and rolled into a smooth hard surface.

Angel hill is a 2-mile drop into the valley, which, on account of its steep grades and short turns, originally was more worthy a name suggestive of the denizens of some other place than that above. It was reconstructed at a cost of $5,000 into a comparatively gentle slope which offered little real danger if the speed of 6 miles an hour indicated by the numerous warning signs erected by the motor club was not exceeded.

Government Is Helping

The 8-mile portion of the park-to-park road from Kalispell to Belton at the entrance of the Glacier national park was built through practically untouched forest at a cost of $10,000. Of the $130,000 spent under the direction of the Flathead Motor Club, $1,500 was donated by the members of the club, while the remainder was from the county funds. The club is



One of the many lakes in Glacier park is Lake McDonald, a mirror for the snow-capped mountain peaks down whose sides the glaciers pour their clear waters in glistening cascades

now raising money to build a motor road from Kalispell to Eureka, on the Kootenai river, a distance of 60 miles, which will give an outlet for motorists to British Columbia and Alberta, Canada.

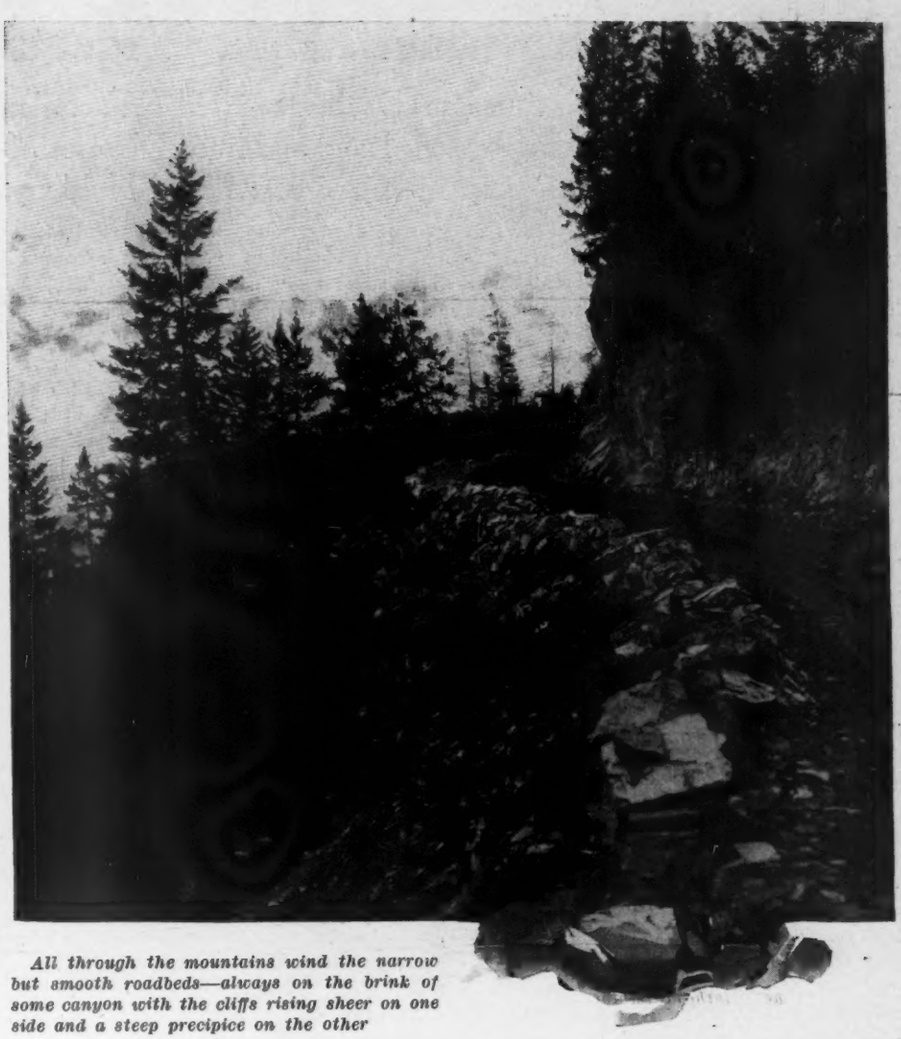
Other towns and counties in the state are accomplishing as much, particularly where, like the Flathead road, the new motor roads are to become a part of the proposed park-to-park highway across Montana, which is to connect the Yellowstone park with the Glacier park.

The federal government also is assisting within its own preserves in the betterment of Montana's roads. There is just reaching completion a macadamized motor road from Belton, one of the southern entrances to Glacier national park, to the foot of Lake Macdonald. This road is only 3 miles in length, but has required the expenditure of $20,000, as it was cut through a thick forest of age-old pine where the tree trunks disputed the right of way with massive glacial boulders. By next year this broad white way, walled on each side by almost impenetrable forest, will be extended for about 25 miles to encircle Lake Macdonald.

Motors Displace Pack Horses

As an evidence of the improvement in traveling conditions made in this section, it may be mentioned that Motor Age published in June an account of the first motor trip to the Glacier national park. This trip was made in May of this year by the secretary of the Flathead Motor Club, and the journey from Kalispell to Lake Macdonald required the whole of 1 day and a great deal of hard labor. A few weeks ago the writer was a passenger in the second trip to be made by motor to the park. The same car was used with the same driver, and the entire distance was covered in 4 hours.

It is not for touring alone that motor roads are being extended throughout Montana. While the citizens realize that motor roads bring tourists who will aid in the development of the state, there is a more immediate and practical use for them, and that is in the transportation of their products and people. Wherever the new roads have come there have followed motor buses that take the place of the old-time stages, motor trucks that displace the packhorses and carry machinery and materials to points out of reach before.



All through the mountains wind the narrow but smooth roadbeds—always on the brink of some canyon with the cliffs rising sheer on one side and a steep precipice on the other

Another thing that will occasion surprise to the eastern motorist in Montana is the number of cars that are met scrambling over the mountain roads or dusting across the prairies. Practically every one of the wealthy ranchmen and mine owners are enthusiastic motorists and use the cars with a recklessness unheard of in the less adventurous parts of the country. Even the drivers of the contesting cars in the Twin-City to Helena tour, who it would be imagined would be the last to be impressed by reckless driving, were awed by the way in which the "dust committees," as they dubbed the local motorists, would race across prairies and over mountain trails.

Cars Are High Grade

Not only is there a very high percentage of motorists among the Montana people, but the cars are remarkable for their quality. Most of them are of the most expensive makes, particularly in the mountains where the rough work requires the utmost reliability. Nevertheless the smaller and cheaper cars are gaining ground and are demonstrating their ability to live up to the requirements of mountain travel.

On the park-to-park highway there is a fine gravel road past the young orchards and wheat fields that have taken the place of the pine forests along the shore of Flathead lake. This country has been open to settlement less than 2 years

Studebakers Entertain Their Agents

Big Detroit Corporation Summons Dealers to E-M-F Factories in Relays—Herreshoff Buys More Land and Ford Disposes of Piquette Avenue Plant—List of General Motors' Holdings

DETROIT, Mich, Sept. 5—The efforts of the manufacturers of motor cars to get into close, personal touch with their dealers have been emphasized several times during the season but the present series of excursions being conducted by the Studebaker Corporation's E-M-F company factories have taken a far greater scope than anything of its kind. During the past week the Studebaker dealers from the central and western south have been present for 2 days each, as guests of General Manager Flanders. They came in special trains from Atlanta, Birmingham, Memphis and Louisville and were, in each case, met at the factory siding by General Manager Walter E. Flanders.

The entire factory staff did everything in its power to entertain the dealers, who were dined at various places, shown through the big plants and given river rides. A baseball game and a trip to the Windsor races also were features.

Aside from the trips through the factories, there were no business sessions. In fact, Mr. Flanders told the dealers on their arrival that the order department was behind locked doors and that the sales department was on a vacation.

"I don't believe that the business of manufacturing and selling goods is yet past the man-to-man stage," Mr. Flanders told the southern dealers. "No business with which I am connected is ever going to reach that point, I am sure. I want to know every man selling our cars and I want him to know me."

The southern dealers of the company were succeeded by delegations from the east this week, the order adopted for the entire function being the branches and dealers tributary to the following cities:

September 5, Philadelphia and Washington; September 6, Chicago; September 11, Dallas and Oklahoma; September 14, Kansas City; September 18, Indianapolis; September 21, Minneapolis; September 25, Fargo; September 29, Des Moines and Sioux Falls.

Dates will be announced later for the visits of the dealers in the far West and the Pacific coast. In general, the branches have been so dated as to bring from 100 to 200 dealers on each visit.

Herreshoff Buys Land

The Herreshoff Motor Co. announces the purchase of an entire block of land on Woodward avenue, in the northern part of the city, on which it proposes to erect a modern factory building. The site is bounded by Belmont and Trowbridge avenues and is somewhat nearer the center of the city than the Ford Motor Co. There is 47,600 square feet of ground.

The Ford Motor Co. has disposed of its plant on Piquette avenue to F. J. Gorman, for an announced consideration of $200,000. The new owners expect to cut the plant up in a way that will enable it to take care of a number of factories, drawing power from the central plant. The Ford company scored its first big success at this location and only completed its final moving operations a few weeks ago. Its interests now are all centered at the Highland park plant.

Will Enlarge Oldsmobile Plant

While official announcement is lacking, it is understood that the General Motors Co. has decided to greatly enlarge the plant of the Olds Motor Works at Lansing. The decision follows a recent visit of the directors who viewed the inadequate appointments of the present plant. The addition, as tentatively planned, will add 50 per cent to the capacity of the plant. Most of it will be in the form of one building, three stories in height and 758 feet long by 74 feet wide.

A large factory now nearing completion is that of the Lewis Spring and Axle Co. of Jackson. This structure is unique in the fact that it is one story high but 250 feet square. This gives a floor area of 62,500 feet and is said to be the largest structure of its kind in the state. Several other concerns will be housed in the building. When occupied, the structure will, it is said, bring 400 skilled laborers and their families to Jackson.

Either Jackson or Detroit will secure the new plant of the motor truck company which has been organized by Benjamin Rosenwieg, Jr., and Patrick R. Doherty of Flint. Messrs. Rosenwieg and Doherty have been in the purchasing departments of the Buick and Patterson factories, respectively. They have enlisted sufficient capital for their plans and are looking for a factory site, with municipal inducements.

General Motors' Factories

An interesting document recently filed at Lansing gives what is believed to be the first authentic list of factories comprising the General Motors group. It sets at rest a number of rumors regarding concerns which have been at times erroneously placed in the property of the company. The complete list of General Motors holdings is as follows:

Buick Motor Co., Cadillac Motor Co., Olds Motor Co., Elmore Mfg. Co., Cartercar Co., Northway Motor and Mfg. Co., Marquette Motor Co., Randolph Motor Co., Rapid Motor Vehicle Co., Reliance Motor Truck Co., Welch Co. of Detroit, Welch Motor Car Co., Champion Ignition Co., Jackson-Church-Wilcox Co., Michigan Auto Parts Co., Oak Park Power Co., McLaughlin Motor Car Co., Ltd., and the Weston-Mott Co.

The Detroit stock exchange is making a feature of motor manufacturing companies' stocks and has built up a lively daily market in which nearly all the standard companies whose stocks are not pooled and kept out of the market, are bought and sold. The latest operations have been in General Motors, United States Motors and Packard Stocks. General Motors common at 41; General Motors preferred at 80; United States Motors common at 31; United States preferred at 70, and Packard preferred at 108 were the latest sales recorded.

Several important changes have been announced in Detroit's retail field during the past few days. J. W. McCrea has been relieved of the management of the local branch of the Hupp Corporation and has been assigned to a similar position at Los Angeles. S. B. Winn, formerly with the Winton's local branch, will succeed Mr. McCrea.

Harry Paxton and A. A. Crumley, both experienced in the sales organizations of several Detroit factories, have formed a partnership and will leave shortly for Philadelphia, where they will establish a headquarters as general eastern sales agents for the Warren Motor Car Co.

The Abbott Motor Co. has just made a large contract with the W. M. Jenkins Co. of Boston, which will act as New England distributor for the entire Abbott-Detroit line.

ARRANGING FOR BANQUETS

New York, Sept. 6—Dates for the big show banquets are being made and already it has been announced that the annual dinner of the Motor and Accessory Manufacturers will be held on the evening of Thursday, January 11, at the Waldorf-Astoria. Tentative plans also are in process of formation with regard to holding a big combined banquet of the exhibitors and officers of the Automobile Board of Trade show at the garden and of the National Association of Automobile Manufacturers' show at the palace. The function probably will be staged at one of the big uptown hotels and the date will probably be Tuesday, January 9.

ELECT GOOD ROADS OFFICERS

Lansing, Mich., Sept. 5.—At the annual meeting of the Michigan State Good Roads Association the following officers were elected: President, Philip T. Colgrove, Hastings; vice-president, N. P. Hull, Dimondale; secretary, A. A. Anderson, Hastings; treasurer, J. Edward Row, Lansing. A new constitution was adopted and the association will be incorporated at once.

At the meeting resolutions were adopted calling for a new law to permit the employment of convicts on state roads, Horatio S. Earle, of Detroit, former state

highway commissioner, being responsible for the resolution. The resolutions also favored a system by which prisoners in jails may be employed on roads in the county in which they are confined. Other resolutions favored a system of interstate roads and Michigan's delegation in congress will be urged to work toward this end.

That the various motor car companies of the state are in sympathy with the movement for better roads was shown in the fact that nearly every one of them had representatives at the meeting. All of them went on record as stating that their firms only are too willing to co-operate with the association.

LOOKS 4 YEARS AHEAD

Tacoma, Wash., Sept. 3.—Convention sites for the next 4 years have been definitely decided upon by the officials of the Pacific Highway Association. The announcement of these sites is made at the present time so that persons intending to make the convention tours can lay their plans in ample time.

Next year's convention will be held at Shasta Springs; in 1913 at some city of southern California; in 1914 at Hazelton or Fort George, northern British Columbia; and in 1915 at San Francisco. With these rendezvous, which allow the tourist to successive meetings to cover practically all the territory along the route from Mexico to the distant north, one may become thoroughly acquainted with the highway itself from actual experience and observation.

The Canadian section of the Pacific highway formally was opened during August. F. J. McKenzie, M. P. P. Government Agent Fletcher, and Alderman Benson, of New Westminster, were the first persons to travel in a motor car over the new section, a 19-mile stretch along the old Yale road. Great difficulties were overcome, which may be realized from the fact that 4 tons of powder were used to clear 2 miles of road.

ACTIVITY AT REO PLANT

Lansing, Mich., Sept. 5—The Reo Motor Truck Co. is making preparations for extensive improvements in connection with the manufacture of the Reo commercial car. For some time past the company has been using the plant known as the Bement factory for the manufacture of this car, but the machine work only was done in this factory, the assembling and shipping being done at the Reo company's plant. The demand for the Reo car has been sufficient to warrant the company in making preparations to enlarge the Bement factory, install new machinery, and at the conclusion of the inventory which is now being taken start up with a full force, and all work from the start to the finish of the car, including the shipping, will be done from that one factory. It is expected that the inventory will be completed about September 15, when operations will be resumed on a larger scale than before.

Glidden Tour Entries Are Numerous

Governor Hoke Smith, of Georgia, Nominates Maxwell for Contest from New York to Jacksonville—Event to be a Stock Car Proposition—E-M-F Pathfinder Starts This Week

NEW YORK, Sept. 5.—The first governor ever to enter a motor contest is Hoke Smith, of Georgia, who is to be a contestant in the Glidden. Entries for the New York-Jacksonville run are coming in now and the list to date includes 28, as follows:

Hoke Smith, Atlanta, Maxwell; C. S. Winn, Atlanta, Flanders; Major John S. Cohen, Atlanta, White; R. P. Hooper, Philadelphia, White; J. H. Marstellar, Roanoke, Chalmers; W. M. Stinson, Jacksonville, Locomobile; C. S. Nolan, Jacksonville, Cadillac; United States Motor Co., New York, three Maxwells; E. P. Ansley, Atlanta, Pierce-Arrow; C. H. Johnson, Atlanta, Stevens-Duryea; H. M. Grant, Atlanta, Marmon; H. B. Race, Jacksonville, Cole; O. S. Albritton, Jacksonville, Cadillac; W. J. Hillman, Live Oak, Fla., Cadillac; Alan H. Whiting, New York, Cunningham; Ray M. Owen, New York, two Reos; W. E. Aycock, Moultrie, Ga., Knox; J. R. Sandlin, Jasper, Fla., Cadillac; R. D. Drysdale, Jacksonville, Cadillac; Studebaker Corporation, Detroit, three E.-M.-F.'s; McIntyre & Co., Auburn, Ind., McIntyre; C. J. Hood, Commerce, Ga., Columbia; Frank Hardart, Philadelphia, Winton.

Owing to a misunderstanding of the action of the Manufacturers' Contest Association taken at the Detroit meeting held last month, in reference to the registration of stock cars of private owners in the 1911 Glidden tour, the supplementary regulations heretofore issued waiving the registration requirements are hereby canceled and registered stock cars only will be eligible to compete for the Glidden trophy and for the cash or plate prizes in the seven price divisions.

The pathfinder, which is to be an E.-M.-F., starts out Friday in charge of A. L. Westgard.

CINCINNATI'S ROAD RACE

Cincinnati, O., Sept. 5—Three nonstock road races will be run off Saturday as part of the celebration of Fern Dam week here. The leading race will be for cars under 600 inches, the distance being 250 miles. The trophy is valued at $2,000 and in addition there are cash prizes of $700, $300 and $200. The 301-450 class is at 180 miles and the trophy is worth $1,800. A $500 purse is split three ways. The race for cars under 300 inches is at 150 miles and the cash prize offering amounts to $325. Eddie Hearne in a Fiat is the most prominent driver entered. In addition there are two Ohios, two Cinos and one each of the Schacht, Buick, Abbott, Wescott, Firestone-Columbus and Cole.

OKLAHOMA STARTS SOMETHING

El Reno, Okla., Sept. 1—More than 1,000 good roads enthusiasts assembled here in convention to discuss plans for perpetuating the old Chisholm trail. Delegates came from Kansas and Texas, as well as from the Oklahoma counties of Grant, Garfield, Kingfisher, Canadian, Grady, Stevens and Jefferson, through which counties the trail passes. The road will pass through a number of growing cities and towns following closely the route of the Rock Island railroad. This railway conducted a number of special excursions to bring delegates to the convention. The route of this proposed new highway was laid out by nature. Great herds of cattle were driven from Texas through Oklahoma to railroad points in Kansas years before the iron rails reached through the state of Oklahoma. As cow trails follow the lines of least resistance, it was other than humans who first laid the foundation for what man will now convert into a fine motor course across the state from north to south which will parallel the other highway that will closely follow the line of the Santa Fe railway running through Oklahoma City, the capital.

MOTOR ROAD UP PIKE'S PEAK

Denver, Colo., Sept. 3—After several weeks of deliberation the Colorado Springs Motor Club has completed plans for the building of a motor road up Pike's peak. It is understood here that D. M. Hizer, former mayor of Colorado Springs and well known in state political circles, will contribute a sum of money to the club which will cover half the expense of the road. It is proposed to build the road of dirt and disintegrated granite, thus making it similar to the road running from Canon City to the Royal gorge.

WANT A NEW RECEIVER

Findlay, O., Sept. 2.—The affairs of the Norwalk Motor Co. are reported to be in a jangle and much bad feeling has been engendered. H. L. Stewart was appointed receiver by Judge Reed, and since that Mr. Stewart has been succeeded by A. J. Schurr, of Cleveland, who was appointed by Judge Killits, at the instance of certain creditors. Now an effort is being made to have Mr. Schurr removed and Mr. Stewart reappointed, this last move being in the interest of Norwalk stockholders.

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More Service Departments Needed

MOTOR car manufacturers are more in need of service departments in many parts of the country than they are in need of branch sales houses or dealers who handle their cars. Up to the present these makers have focused all on selling cars; this has been commendable; it has been necessary to sell cars in order to build large factories, equip these factories, and develop the industry. But the maker must go one step further, he must help the owner, and this is what a service department is supposed to do. Whether the service department fills this bill or not depends on the scope and management of the department. There is no reason why it shouldn't become the trump card of the manufacturer in marketing his product and money spent in maintaining it is money well spent.

SERVICE departments are needed by many companies in many parts of the country because many of their car owners are dissatisfied with the treatment they are receiving from so-called agents. The agent does not get the best imaginable deal out of the maker and how can you expect him to give his entire substance to the owners scattered in his locality. It is unfair. You are asking the dealer to load onto his shoulders a burden which rightly belongs to the car maker, and when this fact is appreciated by the maker, then his relations with his agents will be more amicable. Each will understand the other and there will be a greater incentive on the part of the dealer to boost.

WHEN a man buys a motor car he is entitled to rational treatment. The salesman's work is done when he has made the sale and had the delivery made. But because the salesman's work is completed is not any reason why the factory should cut loose from the owner and leave him, a derelict, so to speak, at the mercy of every repairman or garage man in the locality, which repairmen or garageman may be quite ignorant of the make up of his car, so that when it is placed in their care to make a repair or replacement it is a ten-to-one chance whether the car emerges in better or worse condition. Better it is for the maker that he not take this chance if he is the kind of maker who is building with an eye to the future.

HERE is where the field of the service department comes in. A service department is supposed to be a corps of repairmen, entirely familiar with the make of car which the department represents. They are supposed to have had factory education; they are supposed to be competent to diagnose every ill common to such make of car; to detect every symptom of trouble; and to have at hand a remedy that is a remedy. It is beyond the field of a dealer to do this. The dealer is not certain whether he will be handling the car two, three, four or perhaps not another season and then why should he install a big service department that might be founded on shadows. The service department must be a link of the factory, better still an integral part of it, owned, manned and operated by the factory—a department which assures the customer that the maker has the customer's best interests at heart and is willing to aid him as far as possible.

SERVICE departments are today practically confined to the larger cities and in these cities they are confined to a comparatively few makes of cars. Only those companies that have a goodly number of cars in commission in a large city would be justified in opening a service department and erecting a special service building. But the number of service departments is increasing. Some of the bigger companies have put up their own buildings; others have assisted their agents in the work, and while the agent is apparently the owner of the department he is more often but the nominal head, the equipment and organization being furnished by the factory. This is a good way of entering the thin edge of the wedge and is producing excellent results. More of this juvenile service department work is necessary and the sooner the car owners get to know that the factories are behind these service departments the better for the reputation of the car in question; because just in proportion as good factory-backed service departments are opened so will the owners cut out the repairman who has not the interest of that particular car at heart and who is making his living often by overcharging for incompetent service rendered. This means that the owner will be better satisfied with the results obtained by securing service from the factory direct and a satisfied owner is the best advertisement any manufacturer of motor cars can have.

EVERY factory that has the eventual good of its cars at heart should get into the service department business in the leading population centers where its cars are in use. The establishment of such a department is the binding link between the maker and the owner. The establishment of such a department engenders confidence in the public in the car for which the service department is intended. The service department is one of the best advertisements that any particular make of car can have. There are scores of buyers today who will not buy such-and-such a car simply because they know that they will not get good treatment after the car has been purchased. The service department is a guarantee to every buyer that he will receive treatment, it is one of the strongest arguments that you can place in the hands of the salesman; it is, in fact, the concrete embodiment of good faith on the part of the factory, that it expects to remain in business and that it has the constant welfare of its owners at heart. Your average owner is a keen enough business man to appreciate it. In fact, it looks so business-like to him that he cannot help but be impressed by it.

WHEN service departments were started they were started for commercial vehicles. Makers realized that business men who had been accustomed to horse traffic and horse haulage were not prepared to handle motor traffic to advantage. Where they had tried many failures had occurred. These failures were not necessarily due to poor design, or poor workmanship in truck or delivery wagon manufacture, but to poor operation of the truck after it was purchased. Some of the far-sighted makers were quick to realize that it was necessary to erect service buildings if the best were to be obtained from their vehicles. These pioneers were soon rewarded for their efforts. The service department for the commercial vehicle suggested the service department for the pleasure car and today some of our biggest car makers are erecting service departments intended solely for the pleasure car business. These buildings are being erected in the metropolitan centers and are bound to be of the greatest value, not only to the maker himself, but to the business man who has invested in motor trucks, and who naturally wants to be cared for after he has invested a big sum in power wagon equipment.

Export Business Continues To Grow

WASHINGTON, D. C., Sept. 3.—The export trade in motor cars and parts continues to grow with amazing rapidity. The latest statistics show that 1,025 motor cars, valued at $1,104,807, together with parts to the value of $255,282, were shipped abroad in July, as against 764 cars, valued at $1,034,483, and parts valued at $189,812, exported in July a year ago. During the 7 months' period ending July the exports of cars increased from 5,314, valued at $7,369,486, in 1910, to 8,935 cars, valued at $9,194,564, in 1911. During these periods the exports of parts, not including tires, increased from $1,272,058 to $1,901,707.

The number of cars and the countries to which they were shipped during the periods under consideration are as follows:

JULY

Exported to—	No.	Value
United Kingdom	229	$ 219,153
France	33	45,544
German	16	14,357
Italy	32	20,508
Other Europe	60	70,522
Canada	289	365,989
Mexico	7	18,285
West Indies and Bermuda	21	21,454
South America	48	69,105
British Oceania	168	156,951
Asia and other Oceania	91	75,106
Other countries	31	27,833

SEVEN MONTHS ENDING JULY

Exported to—	No.	Value
United Kingdom	1,875	$1,653,995
France	273	326,800
Germany	73	912,83
Italy	137	169,914
Other Europe	508	492,222
Canada	3,724	3,925,265
Mexico	147	258,064
West Indies and Bermuda	175	210,432
South America	444	604,229
British Oceania	938	858,196
Asia and other Oceania	477	428,119
Other countries	164	176,045

Eighty motor cars, valued at $175,741, together with $21,710 worth of parts, were imported during July last, while in July a year ago the number of machines imported was 86, valued at $180,935, with parts valued at $53,438. During the 11 months' period the number of cars imported decreased from 634, valued at $1,253,997, in 1910, to 492 cars, valued at $1,067,091, in 1911. Imports of parts likewise declined in value from $548,136 to $211,671 during these periods. The imported cars were received from the following countries:

JULY

Imported from—	No.	Value
United Kingdom	10	$21,469
France	22	56,142
Germany	14	33,080
Italy	10	14,578
Other countries	24	50,472

SEVEN MONTHS ENDING JULY

Imported from—	No.	Value
United Kingdom	78	$190,740
France	178	383,959
Germany	88	193,092
Italy	50	82,610
Other countries	98	216,690

SCORCHERS MISS A CHANCE

Milwaukee, Wis., Sept. 4—Unbeknown to them, Wisconsin motorists were immune and might have sped 90 miles an hour at any time between July 22 and August 1, and would have escaped court punishment. This discovery followed the examination of the 1911 speed laws by Attorney General Bancroft resulting an opinion asked by District Attorney Rooney of Appleton, Wis. The former speed limit was 12 miles an hour. The state legislature extended the limit to 15 miles, but after this law was officially published, the legislature on July 22 passed another act which suspended the law which repealed the 12-mile an hour law. From July 22 to August 1, the day the last law became effective, therefore, there was no statute regulating the speed of motor cars in Wisconsin. As a result of this condition of affairs, an Appleton man who broke the speed limit on July 31 will escape trial.

The movement which has been started in Milwaukee to make violation of motor speed laws a city penalty instead of a state penalty so as to divert into the city treasury all fines collected for these offenses is being met with opposition from many quarters. It is held that with the law as it is at present, a man arrested and fined for speeding has a criminal record against him, but in case the offense is changed to a misdemeanor, all the arrested motorist will have to do is to pay his fine and the matter will be ended. It would leave no criminal mark against him.

Coming Motor Events

September 2-12—Motor truck display, Milwaukee Industrial Exposition.

*September 6-9—Reliability run of Automobile Club of Buffalo.

*September 9—Road race, Cincinnati. Fern Bank Dam Association.

*September 9—Track meet, Hartford, Conn. Connecticut Fair Association.

*September 7-8-9—Track meet, Minnesota State Automobile Association, Hamline track, Minnesota.

*September 9—Hill-climb at Port Jefferson, N. Y.

September 10—Liedekerke cup road race, Belgium.

*September 12-13—Track meet, State Automobile Association, Grand Rapids, Mich.

September 14-15—Chalmers' owners' consistency run, Denver.

September 15—Track meet, Appalachian exposition, Knoxville, Tenn.

*September 16—Track meet, Automobile Club and Dealers, Syracuse, N. Y

September 18-20—Reliability run for trucks of Chicago Motor Club, Chicago.

September 19-21-23—Reliability run, Burlington, Vt.

September 23—Track meet, Point Breeze. Philadelphia Automobile Trade Association.

*September 23-25—Track meet, Detroit. Michigan State Automobile Association.

October 3-7—Track meet, Danbury, Conn. Agricultural Society.

October 7—Track meet, Springfield, Ill. Springfield Automobile Club.

*October 7—Fairmount Park road race, Philadelphia.

October 9—Oklahoma reliability run, Daily Oklahoman.

October 6-13—Eight-day reliability run of Chicago Motor Club.

*October 14—Santa Monica road race, Los Angeles, Cal.

October 15-25—Glidden Tour, New York to Jacksonville.

October 16-18—Reliability run of Harrisburg Motor Club.

November 1—Track meet of Waco Automobile Club, Waco, Tex.

November 2-3-4—Reliability run of Quaker City Motor Club, Philadelphia.

November 9-11—Track meet, San Antonio Automobile Club.

November 4-6—Phoenix road race, Maricopa Automobile Club.

November 9—Track meet of Maricopa Automobile Club, Phoenix, Ariz.

November 27—Vanderbilt road race, Savannah, Ga.

November 30—Grand prix race, Savannah, Ga.

January 1-5—Annual show, Automobile Manufacturers' Association of America, Grand Central palace, New York.

January 6-13—Twelfth annual show, pleasure car division, Automobile Board of Trade, Madison Square garden, New York.

January 6-20—Madison Square Garden show, New York City, Automobile Board of Trade.

January 10-17—Annual show, Motor and Accessories Manufacturers, Madison Square garden, New York.

January 10-17—Annual show, National Association of Automobile Manufacturers, Grand Central palace, New York.

January 15-20—Twelfth annual show, commercial division, Automobile Board of Trade, Madison Square garden, New York.

January 27-February 10—Eleventh annual show under the auspices of the National Association of Automobile Manufacturers, Coliseum, Chicago.

March 13-20—Show of Boston Commercial Motor Vehicle Dealers' Association, Mechanics' building, Boston.

*Sanction already issued

WOULD EXPAND BOND ISSUE

Findlay, O., Sept. 2.—Led by the Ohio Federation of Good Roads, agitators will go to the constitutional convention next winter at Columbus, with a proposition for expansion of the bond issue. This will be the first step in the plan for a system of intercountry roads to be built in large part by state aid. The federation proposes to conduct a campaign of education on the good roads question between now and next January, with the view that whatever sentiment there may be against large issuances of bonds by the state may be overcome.

Under the present constitution, adopted in 1851, the bond issue limit is only $750,000, which also includes school bonds. The amount is regarded as ridiculously small, when Ohio expects under the new taxation plan to have a grand duplicate of more than $6,000,000,000. It is proposed to increase the bond limit to 1 per cent of the grand duplicate. That would permit the state to issue $60,000,000 worth of bonds.

Former Senator W. A. Aldsorf, of the federation, believes that not all of $60,000,000 would be needed on the part of the state to practically complete a system of intercounty roads which would connect every county seat in the state. Under the general plan outlined, the state would pay one-half of the cost, counties and townships and property owners the other half. If the state voted to issue only $50,000,000 worth of bonds, it would mean $100,000,000 on good roads at one stroke.

Labor Day Events in Motoring World

Brighton Beach Meet Attracts Big Crowds, Feature Being Breaking of 1 and 2-Mile Dirt Track Records by Burman—Westcott Wins 200-Mile Race at Columbus—National and Staver-Chicago Prominent at Amarillo, Texas—Racing at Other Places

NEW YORK, Sept. 5—New marks were set for the 1 and 2-mile distances on circular dirt tracks at the 2-day race meeting that came to a close on Labor day at Brighton Beach. The Blitzen Benz, driven by Burman, on Saturday reduced the 2-mile record to 1:37.89, knocking off about 3 seconds from the best previous time. On Labor day the same car and driver clipped 1-10 of a second from the mile distance, making the circuit in :48.62.

The track was in better shape than ever before, especially on the final day, and with good weather two big crowds turned out to enjoy the sport. There probably were 15,000 paid admissions both days. Only one accident occurred and that was not serious. This incident came off in the final race on Labor day when Spencer Wishart in his big Mercedes attempted to catch the flying Mercer in the handicap race. The car blew a right rear tire at the clubhouse turn and plunged through the fence, overturning with the young millionaire. It was in the last lap of the race, which probably accounts for the lack of fatalities, for to the amazement of the big crowd, no sooner had the car capsized in the ditch than an ambulance dashed out on the track among the rushing contestants and rushed up to the wreck. Wishart certainly would have been no worse than second but for the accident.

Story of the Races

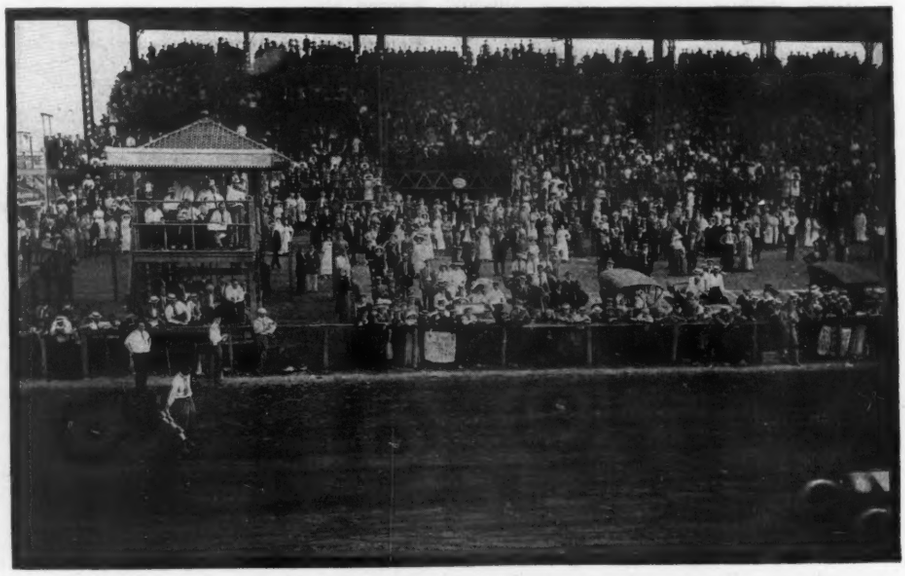
Of the racing there is little to be said. On the first day the finishes were all tame and on the second they were all close. They were so tame on the first day that the spectators lost interest to a great extent save in the first heat for the Remy brassard and trophy. In this event three entries from the Moross string constituted the field and the most carping critic could not wish for a prettier race or a more stirring finish. In fact, all three cars led at one stage or another and a blanket could have covered them at the finish. It was highly artistic, particularly Disbrow's driving of the Mercedes representative of the string. The final heat also was a spectacular triumph with the result never in the least doubtful, but the winning margin was slight. The big crowd was somewhat astonished when it was announced that the Moross Mercedes was to be driven by Oldfield, but these fears were quieted when it was learned that the driver was not the redoubtable Barney, now under the official ban.

Several Close Finishes

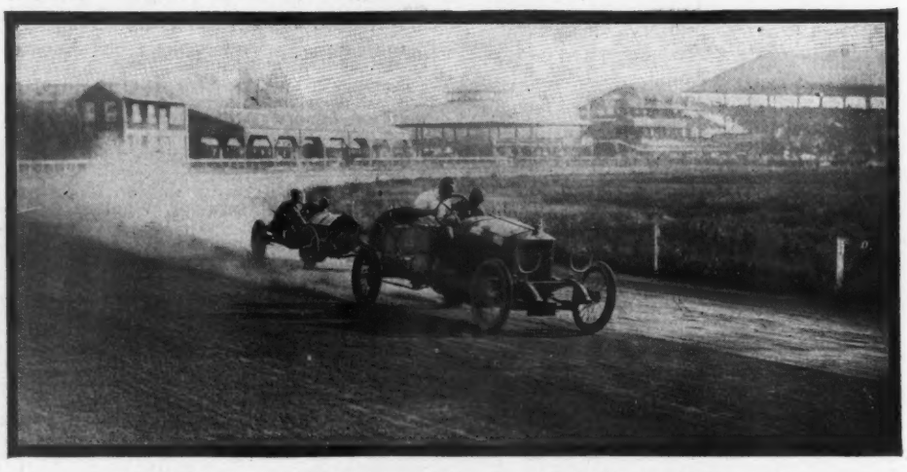
Close finishes were the order of the day in the final session, in fact it seemed as if the "order" was followed a trifle too literally. In several of the races the winner lay off the pace and just nosed out the second car in furious drives that aroused much enthusiasm. The first event was taken by an E. M. F., or rather the E. M. F., which just galloped all the way and won going away. The Mercer took the second without much of a struggle and National 40 annexed the third class race. The same car also won the big class event in comfortable style. The first heat of the brassard contest was won by the Benz in a nose finish with its stable mates, the Jenatzy Mercedes and the 200-horsepower Hotchkiss.

The 50-mile feature brought out a field of four cars, including an Opel, Mercer, National and Jackson. The Opel set a fast pace for 5 miles, when it was headed for a moment by the Mercer and then reassumed the lead clear to the wire. The National suffered tire trouble early and often and was afflicted with a sooty spark plug in the middle distance, losing eleven laps during the tire changes. The Jackson pursued a troubled course for half the distance and retired for what was announced to be carbureter troubles. The Opel ran steadily and quietly from start to finish, closely accompanied by the Mercer until the forty-seventh mile, when a dangerous blow-out on the clubhouse turn caused the loss of over a lap to the Mercer. Hughes handled his car in masterly style and after limping around to the paddock made a wonderful quick tire change and was out on the track again in pursuit of the curious looking German car. The Opel won eased up in 50:07.13, slightly less than 60 miles an hour.

The last race of the first day was the prettiest on the card. It was a free-for-all handicap and a Benz car from scratch proved



HUGE CROWDS PACKED THE BRIGHTON BEACH STANDS



BURMAN IN OPEL AND HUGHES, MERCER, IN A BRUSH

the winner, getting up in time to defeat the Mercer and E-M-F in a wild ride.

Second Day of Racing

The second day's card furnished a series of remarkable finishes. In the first race the E. M. F. lay second and third for 4½ miles, taking the dust of the Paige-Detroit and part of the time trailing the Penn 30. But when the final run came along, Tower moved up quickly and swung into the stretch on even terms with the pacemaker. From there to the wire it was a hair-raising struggle with the honors going to E. M. F. In the second race it seemed impossible to make a contest with only the Mercer and Schacht entered, but Hughes in the Mercer proved the fallacy of such a supposition. The Schacht led for part of the distance or until the Scotch driver was ready to get into action and then there was nothing much to it but the Mercer.

The Opel showed its quality in the third class event by winning from a Benz and a National. Burman, at the wheel of the winner, was first at the wire rather easily by a very tight margin, with Oldfield in the Benz just far enough away to get second money.

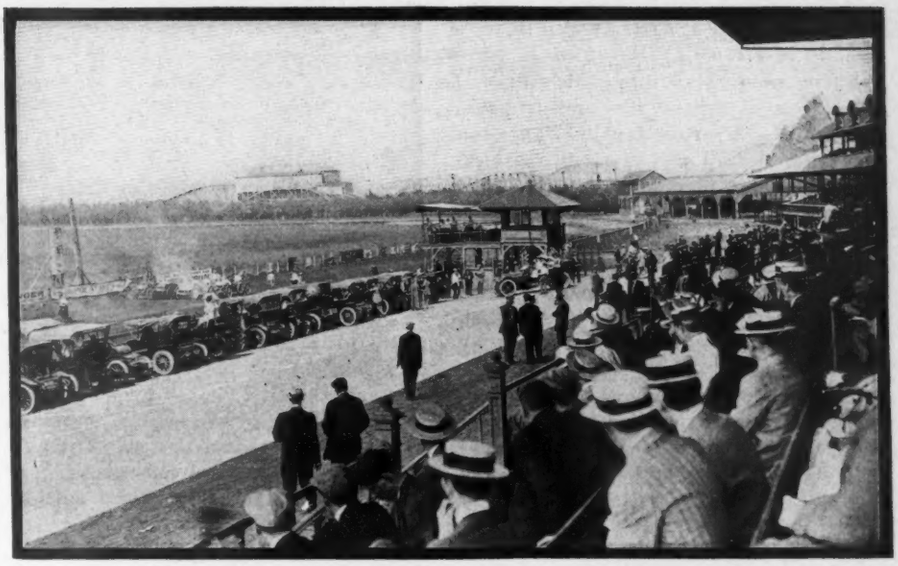
As has been recounted, the final heat of the Remy brassard was another magnificent triumph of art and clever driving by all three of the Moross pilots.

The 10-mile event for big cars brought a field of four to the line, including the Opel, National, Mercer and the big Mercedes racer owned and driven by Spencer Wishart in the recent 500-mile sweepstakes in Indianapolis. The Opel made the pace all the way, but the Mercedes kept shooting at the leader on every turn, only succumbing at the very end. The Mercer was a close third and the National went out with a puncture on the first turn.

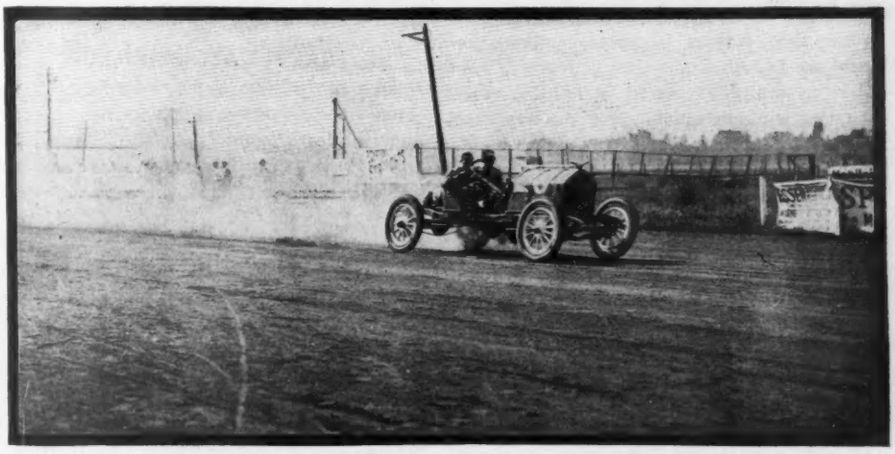
Long Race to the Mercer

The 50-mile race went to the Mercer after the Mercedes had suffered its second blowout. The pursuit of the low-hung yellow car driven with supreme skill by Hughes, by the big-hooded gray racing car was extremely interesting. Hughes never took a chance and when he found that his rival had eliminated himself from first place by a broken axle or something of the sort, he finished the distance easing up and allowing the Mercedes to lap him.

The last race of the day and meet looked like a tragedy for a minute during the last lap of the free-for-all handicap. There was a big field on the track and the Mercer had gradually worked through the small fry and was out in front passing the stand on the last lap. Up the stretch was the E-M-F that had shot its bolt and directly behind the Michigan car came the National and the Wishart Mercedes. The National was going well for the first time during the day and Wishart was pushing the German car to the limit. The National was on the rail and when Wishart opened up at the wire, the Mercedes shot ahead and took a long slant for the first turn, intending to displace the National and close the gap on the leader. Wishart made a quick rush for the turn, but was so close to the National after taking the rail position that the National was obliged to hold hard and shut off power.



CARS AT BRIGHTON BEACH PARKED IN FRONT OF STAND



SHEETS IN NATIONAL, PROMINENT IN NEW YORK'S MEET

Close Call For Wishart

Suddenly the stands were electrified by the sound of a tire explosion and out of the cloud of dust the big gray car was seen to make a dive diagonally across the track. Clear to the pole the car shot with the driver doing manful work in an endeavor to hold it on the track. Just for a second it seemed as if he would succeed and then a cloud of fence rails and splintered posts told the tale of going through the fence. The car tottered on the side of the ditch and then turned over, Wishart leaping out in safety. Summaries:

FIRST DAY

Five miles, 161-230 class—Tower, E-M-F, won; Craig, Paige-Detroit, second; Ainslie, Penn, third; McBridge, Jackson, fourth; Ferguson, Lancia, fifth. Time, 5:55.36.

Five miles, 231-300 class—Hughes, Mercer, won; Foster, Correja, second; Gray, Schacht, third. Time, 5:22.56.

Five miles, 301-450 class—Sheets, National, won; Disbrow, Benz, second; Cobe, Jackson, third; Rogan, Jackson, fourth. Time, 4:51.80.

Two-mile time trial—Burman, Benz. Time, 1:37.89.

Five miles, under 600 class—Sheets, National, won; Cobe, Jackson, second. Time, 5:27.67.

Three-mile free-for-all, first heat—Burman, Benz, won; Disbrow, Mercedes, second; Kilpatrick, Hotchkiss, third. Time, 2:57.04.

Fifty miles, under 600 class—Burman, Opel, won; Hughes, Mercer, second; Cobe, Jackson, third; Sheets, National, fourth. Time, 50:07.13.

Five-mile handicap—Burman, Benz, won; Hughes, Mercer, second; Tower, E-M-F, third. Time, 5:25.25. Correja, Hotchkiss, Paige-Detroit, Lancia, National, Regal, Jackson and Opel also started.

SECOND DAY

Five miles, 161-230 class—Tower, E-M-F, won; Craig, Paige-Detroit, second; Ainslie, Penn, third; Ferguson, Lancia, fourth. Time, 5:45.13.

One-mile time trial—Burman, Benz, 48:62.

Five miles, 231-300 class—Hughes, Mercer, won; Gray, Schacht, second. Time, 5:35.10.

Five miles, 301-450 class—Burman, Opel, won; Oldfield, Benz, second; Sheets, National, third. Time, 5:02.96.

Three mile free-for-all, final heat—Burman, Benz, won; Oldfield, Mercedes, second; Kilpatrick, Hotchkiss, third. Time, 2:50.90.

Ten miles, under 600 class—Burman, Opel, won; Wishart, Mercedes, second; Hughes, Mercer, third; Sheets, National, fourth. Time, 9:43.30. Paige-Detroit, Penn, Lancia, Hotchkiss, Mercedes, Regal and Benz also started.

Five-mile free-for-all handicap—Hughes, Mercer, won; Tower, E-M-F, second; Sheets, National, third. Time, 5:14.31.

Fifty miles under 600 class—Hughes, Mercer, won; Wishart, Mercedes, second; Sheets, National, third; Burman, Opel, fourth. Time, 49:56.06.

WESTCOTT WINS COLUMBUS RACE

Columbus, O., Sept. 3—A crowd variously estimated at between 25,000 and 28,000 attended the 200-mile race held under the auspices of the Columbus Automobile Club at the Columbus track today.

Harry Knight in a Westcott won the race handily in 3:45:00.

There were three cars which finished the 200 miles out of the eight starters. Jackson No. 2 car, driven by Max Borst and entered by J. P. Adamson, the local Jackson dealer, finished in 4:15:00, while Jackson No. 1, driven by John Borst, a brother of the other Jackson driver, finished just 1 minute later.

The starters were: Jackson, John Borst, driver; entered by J. P. Adamson. Jackson, Max Borst, driver; entered by J. P. Adamson. Cino, William Fritsch, driver; entered by Haberer & Co. Ford, W. G. Lake, driver; entered by Ohio Auto Sales Co. Marquette-Buick, Frank Lawwell, driver; entered by Leyman Buick Co. Westcott, Harry Knight, driver; entered by the Westcott Motor Car Co. Firestone-Columbus, Lee Frayer, driver; entered by Lee Frayer. Cole, G. Morris and John Jenkins, drivers; entered by Cole Motor Car Co.

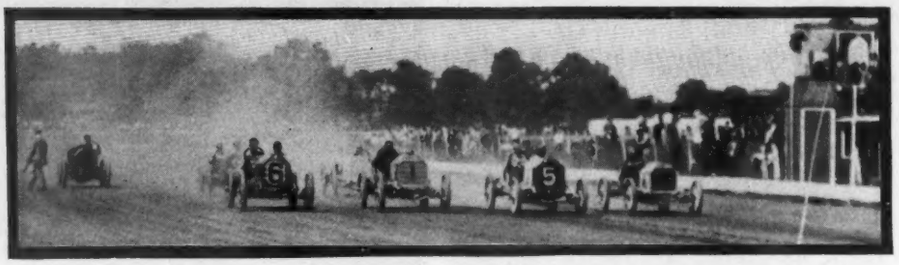
The race was a sweepstake with the purse of $1,000 divided as follows: First, $500; second, $300; third, $200. In addition the winners of the first three places receive valuable trophies in the shape of loving cups.

Lee Frayer in the Firestone-Columbus kept the lead until the eighty-sixth mile, when the car skidded while making a curve and went through a fence. Frayer was pinned under the car and was taken out after some trouble. He was not seriously injured and is expected to be around in a few days.

The Wescott driven by Harry Knight then took the lead and held it until the end. The car never was in danger and was compelled to stop only twice during the 200 miles. The first stop was made after the car had made 114 miles and was for gasoline and oil and another stop was made later for one tire.

The Cino, driven by William Fritsch, only made 14 miles before it was compelled to leave the track because of magneto trouble. At the end of the thirty-first mile the Ford, driven by W. G. Lake, was compelled to leave because of trouble with the water cooling system. The Cole, driven by Jenkins, was compelled to quit at the end of the seventy-third mile because of engine trouble.

The winner of the race, Harry Knight, made the sixth mile of the distance in 58 seconds flat, which was his fastest mile. Frayer went one of his miles in :54.



START OF 200-MILE TRACK RACE AT COLUMBUS

RACING AT AMARILLO

Amarillo, Tex., Sept. 4—Special telegram—The races at Amarillo today under the auspices of the Panhandle Automobile Fair Association, governed by the rules of the three A's, with R. W. Carr, of San Antonio, as referee, were attended by a record crowd. The first event of 20 miles was won by the E-M-F, driven by Reeves in 20:15. The Marion, driven by Ray, won second place in 21:03.

The second race was at 30 miles and was won by a Staver-Chicago, driven by Monckmeier, in 29:06. Another Staver-Chicago was second in 29:20. An E.-M.-F., driven by Reeves, was third in 30:00. The fourth race, at 50 miles, was won by a National 40, driven by Reeves, in 44:37.

Second Day at Amarillo

Amarillo, Tex., Sept. 5—The 2 days' race meet came to a close this afternoon in a highly sensational manner when Carl Reeves, of Midland, Tex., driving a National 40, wrecked his car while going at a rate of somewhat more than 70 miles an hour, caused by striking a soft earth roll at the inner line of the track. The car was torn almost part from part, only one wheel retaining its spokes. The driver was thrown entirely across the track, sustaining a scratched elbow and bruised hip. The first race of the afternoon was 30 miles, won by a Staver-Chicago, driven by Nikrent. The 100-mile race was won by a National 40, driven by Wilcox, in 96 minutes 56 seconds. A Staver-Chicago, driven by Monckmier, was second.

Summary:

FIRST DAY

Twenty miles—Reeves, E-M-F, won; Day, Marion, second; Tripplett, Buick, third. Time, 20:15.

Thirty miles—Monckmeier, Staver-Chicago, won; Nikrent, Staver-Chicago, second; Reeves, E-M-F, third. Time, 29:00.

Fifty miles—Reeves, National, won; Wilcox, National, second; Johnson, Marmon, third. Time 44:37.

SECOND DAY

Thirty miles—Nikrent, Staver-Chicago, won; Monckmeier, Staver-Chicago, second; Johnson, E-M-F, third. Time, 28:27.

Sixteen miles—Hognson, E-M-F, won; Tripplett, Buick, second. Time, 15:55.

100 miles—Wilcox, National, won; time, 1:36:52; Monckmeier, Staver-Chicago, second; time, 1:43:15; Nikrent, Staver-Chicago, third.

Fifty miles—Wilcox, National, won; Johnson, Marmon, second. Time, 46:59.

FARMERS' SOCIABILITY RUN

Des Moines, Ia., Sept. 3.—Forty-three Iowa farmers have just completed what is said to be the first sociability run ever held by farmer-motorists. The tour covered 100 miles, starting from Kalona. The route led through Washington, Brighton to Richmond, and return. Not a single one experienced any mechanical trouble, which added greatly to the pleasure of the trip. All returned enthusiastic over the success of their initial sociability, predicting that many such tours would follow. The run was inaugurated by Louck & Boehm, of Kalona, the Moline agents at that place.

OREGON BEACH MEET

Portland, Ore., Sept. 3.—More than 2,000 enthusiasts witnessed the races at Gearhart beach August 26. In the first race, 5 miles, a Locomobile, driven by C. A. Barstow, won, covering the distance in 5:26. D. C. Reynolds, in a Pierce-Arrow, was second. The only other entry failed to finish. Carl R. Gray, president of the Hill lines in Oregon, presented a cup to the winner.

Robert Bearce, driving a Marion, won the second race, also 5 miles, in 5:48.

LONDON POLICE USE MOTOR CARS IN RECENT LABOR TROUBLES

George Crab, in a Warren-Detroit, was second, and F. W. Perkins, driving an Overland, third. The race was for the Astoria Centennial cup.

The third race was a 5-mile handicap event and was captured by D. C. Reynolds, in his Pierce Arrow, in 5:30. C. A. Barstow, in a Locomobile, was second, and Robert Bearce, driving a Marion, third. The Gearhart hotel presented the winner with a cup.

The entries in the three races were not as many as the committee had anticipated, nor were the races so well attended as similar meets held in Oregon. This is the first race to be held at Gearhart beach.

MEET AT POTTSTOWN

Pottstown, Pa., Sept. 2.—The annual fair of the Montgomery County Fair Association was brought to a successful termination today by an afternoon devoted to motor racing under the auspices of the South Jersey Motor Club, the meet attracting a crowd of upward of 5,000 enthusiasts. Interest centered in the attempt to lower the existing local record for the mile circular track of 1:02 1-5, hung up by the Mercer car last year, Harvey Ringley driving. William Mullin turned the trick, clipping 1 1-5 seconds from the mark, negotiating the circuit in 1:01. Summary:

Ten miles, 161-230 class, nonstock—Padula, Abbott-Detroit, won; Snader, Regal, second; Baker, Metz, third. Time 11:50.

Ten miles, 231-300 class, nonstock—Ringler, Mercer, won; Morton, Klinekar, second; Hambly, De Trimble, third. Time, 11:57.

Ten miles, 301-450 class, nonstock—Davis, Velie, won; Isenberg, Flat, second. Time, 11:38⅘.

One mile for track record—Mullin, 1:01.

Ten miles, 161-230 class, nonstock—Snader, Regal; Baker, Metz; race called second lap, no time.

Five miles, match race—Davis, Velie, won; Morton, Klinekar, second. Time 5:26⅕.

Ten-mile handicap race for winners of previous events—Davis, Velie, 30 seconds, won; Padula, Abbott-Detroit, 1 minute, second; Snader, Regal, 1:06, third. Time, 11:30.

Five-mile handicap for losers of previous events—Morton, Klinekar, 30 seconds, won; Padula, Abbott-Detroit, 10 seconds, second. Time, 5:33.

SMALL CARS AT SALEM

Salem, N. J., Sept. 4—The happy combination of perfect weather conditions and a holiday served to attract a throng of 5,000 motoring enthusiasts from all sections of southern New Jersey today to witness the races conducted by the South Jersey Motor Club at the organization's Labor day meet on the ½-mile track here. The races, most of which were for a distance of 5 miles, started at 2 o'clock and were run off with very little delay between events. The event provocative of the most excitement was the trial against time for 5 miles on the ½-mile track. The former record for a ½-mile course in Jersey was 6 minutes 45 seconds, but Harvey Ringler, piloting a Mercer car, clipped 2⅗ seconds from the old mark, the watches catching the time in 6:37⅘. Ringler also captured the first event, a 5-mile affair, his opponent, Bob Morton, Kline-Kar, being forced to drop out. The Velie maintained its fine work of last Saturday at Pottstown by running both of the races in which it was entered, J. David at the wheel. Vincent Padula, of Philadelphia, in an Abbott, had an easy time capturing the second event, 5 miles, neither of his competitors, a Klinekar and Metz, finishing.

WILKES-BARRE HOLDS MEET

Wilkes-Barre, Pa., Sept. 5—Five efforts to break the record of 1:08 for a mile on a ½-mile track failed at the Minooka driving track near here yesterday, Ralph de Palma making the trial twice and R. A. Amerman, Eugene Cusiki and Willie Haupt each once. De Palma made the best time in his Simplex, a mark of 1:11 being credited to him. A crowd of 5,000 people witnessed the races and the efforts to lower the records, all of which were held under the auspices of the Scranton Racing Associations. The time for all the events was unusually good, considering the manner in which the track was banked. Summary:

Two miles—Ralph Ammerman, Buick, won; William Krise, E-M-F, second. Time, 2:57.

Three miles—Ralph de Palma, Mercer, won. Time 4:03.

Three miles—Willie Haupt, National, won; Tom Jacobs, Buick, second. Time, 4:09⅕.

Exhibition miles to break Burman's record of 1:08—Ralph de Palma, Simplex, time 1:11, 1:17⅕; Haupt, National, 1:17⅕; Cusicki, Buick, 1:21.

Five miles—De Palma, Mercer, won; Ralph Ammerman, Buick, second; David Birtley, Buick, third. Time, 7:54⅖.

Three miles, amateur—Dr. E. F. McGinty, Buick, won; Joe Wills, Buick, second. Time, 4:41⅕.

Five miles, non-stock, class C, free-for-all—De Palma, Simplex, won; Haupt, National, second. Time, 6:39.

Three miles, non-stock, class E, free-for-all handicap—Simplex won.

Three miles non-stock, class C, free-for-all handicap—De Palma, Simplex, won; Haupt, National, second; Ammerman, Buick, third. Time, 3:41⅕.

MINNESOTANS ON SOCIAL RUN

Minneapolis, Minn., Sept. 2—A sociability tour which was participated in by professional men, farmers and tradesmen of the town of Redwood Falls, Minn., and vicinity started on the first annual tour of the Redwood Falls Automobile Club to Minneapolis and return, via St. Cloud, Monday morning, August 28. More than eighty motor enthusiasts, a large percentage of them women, occupied the twenty-three cars which wended their way through the green valley of the Minnesota river.

All but one of the cars reached St. Cloud, the night stop, Monday night after covering 128 miles in three counties and passing through twelve towns—Morton, Olivia, Willmar, Spicer, Green Lake, New London, Hawicia, Painesville, Rosvoe, Richmond, Cold Springs and Rockville.

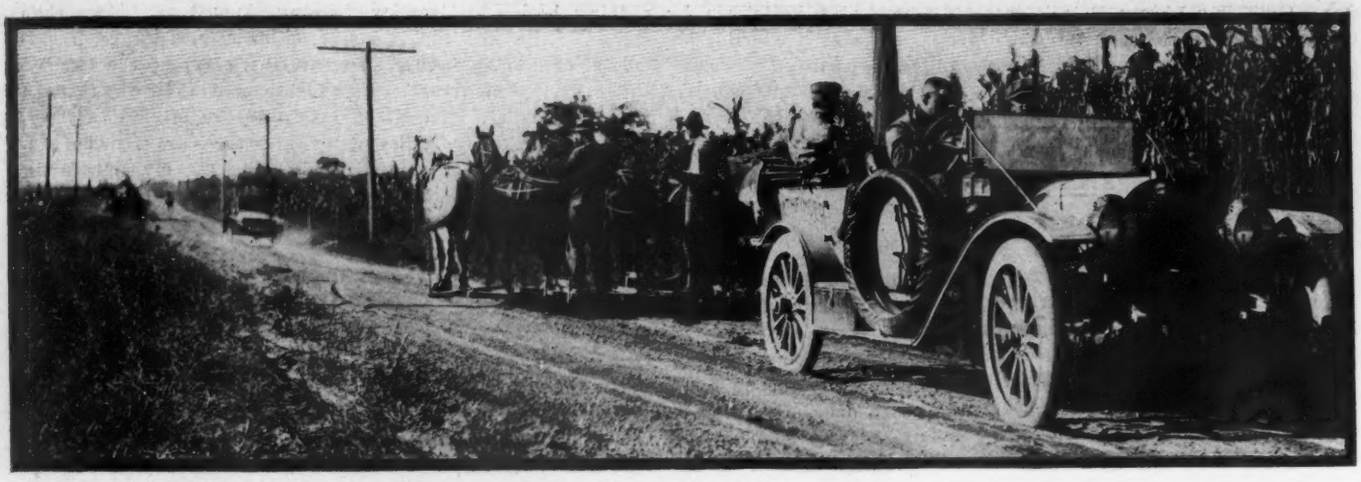
Gottlieb Kuenzlie, the only tourist to meet with serious grief, was still at Willmar, late Monday night, awaiting repairs on his machine which jumped an embankment on a curve 4 miles out of that town.

Tuesday officials of the St. Cloud Automobile Club piloted the tour to Clear Lake and left them where the road forked down along the Great Northern right-of-way toward Minneapolis. No stop was made until Anoka was reached. For more than 20 miles from Clear Lake the road lies straight and even along the railroad tracks, through Becker and far beyond Big Lake. Then it turns and follows the picturesque Elk river, later reaching higher land before coming into Anoka. After spending the night at the Radisson hotel in Minneapolis, the tourists turned their faces homeward Wednesday morning in a drizzling rain.

INDIANAPOLIS ENTERTAINS VISITORS

Indianapolis, Ind., Sept. 4.—This city is entertaining one of the largest crowds in its history this week, the occasion being the fall buyers' meet of the Indianapolis Trade Association and the Indiana state fair. No fewer than 200,000 visitors are expected in the city during the week. A number of motor car concerns have exhibits at the fair grounds, while others have special displays at their sales rooms. Motor car dealers of North Capitol avenue, known as Motor row, are giving parades at 11 o'clock each morning, followed by some special form of entertainment.

IOWA FARMERS PARTICIPATE IN SOCIABILITY RUN



CHICAGO SCOUTS ENCOUNTER ROAD-MAKERS NEAR THAYER, INDIANA

PATHFINDERS FROM CHICAGO ENJOY KENTUCKY HOSPITALITY

England Plans a Big Race

LONDON, Aug. 18.—The race for the O'Gorman trophy will be run at Brooklands on October 4. The conditions specify that the trophy shall be awarded as the result of the race between self-propelled vehicles or motor cars, whatever their country or origin, and the trustee of the same shall be the Royal Automobile Club.

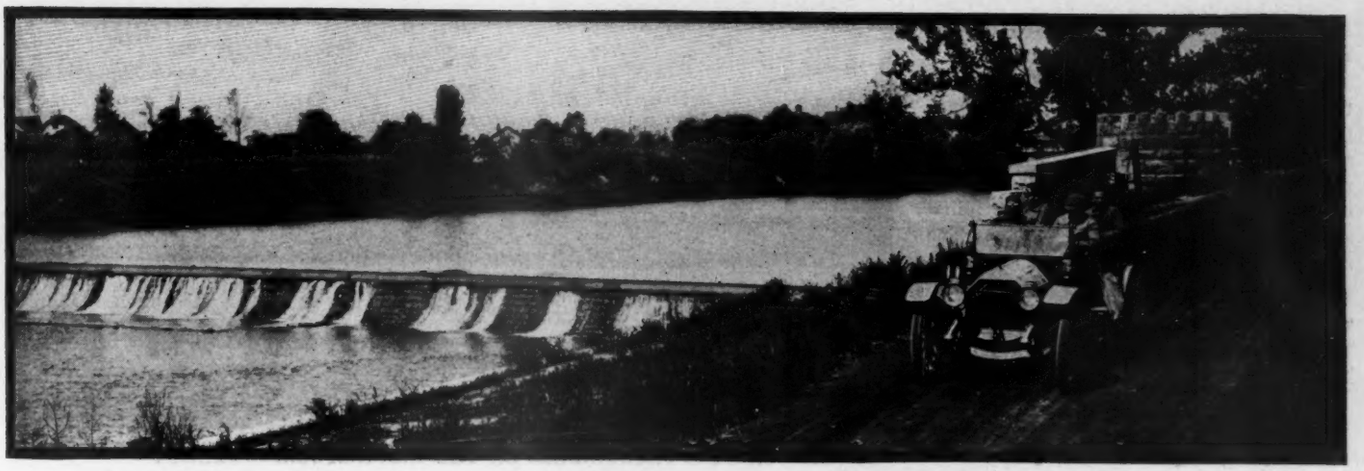
The cars entered are to be propelled by means of internal combustion engines only, the R. A. C. rating of which does not exceed 21 horsepower and the stroke of which does not exceed 4.7 inches.

The actual distance of the race will be 28 miles. No limitations are to be placed on the kind of fuel employed, and the method of its delivery to the working parts, or on the use of auxiliaries, such as compressed oxygen, actylene, etc.

In all probability the ten laps, the distance of the O'Gorman trophy race, will be run at somewhere about 80 to 85 miles per hour.

ITINERARY OF CHICAGO RUN

OCTOBER 6	
Chicago	0.0
South Chicago, Ill.	13.2
Hammond, Ind.	21.8
Dyer	31.6
St. Johns	37.0
Crown Point	43.7
Thayer	61.4
Enos	77.9
Morocco	82.7
Brook	92.7
Ade's farm, noon control	95.0
Foresman	96.2
Goodland	104.0
Fowler	115.4
Oxford	125.9
Otterbein	135.8
Montmorenci	137.9
Lafayette	148.0
Romney	159.9
Crawfordsville	175.2
Whitesville	182.1
New Ross	188.4
Jamestown	193.6
Lixton	198.9
Pittsboro	203.3
Brownsburg	207.2
Clemonts	211.7
Speedway	217.0
Indianapolis	221.5
OCTOBER 7	
Indianapolis	0.0
Glenwood	10.8
Whiteland	15.3
Franklin	20.5
Edinburg	31.3
Taylorville	35.9
Columbus	43.1
Jonesboro	54.1
Seymour	62.5
Brownstown	72.6
Balonia	76.5
Medora	82.2
Leesville	89.5
Bedford, noon control	102.2
Fort Rittner	118.4
Campbellsburg	129.0
Salem	140.2
Pekin	149.6
Borden	154.4
Bennettsville	163.1
St. Joseph	165.2
New Albany, Ind.	173.0
Louisville, Ky.	177.6
OCTOBER 9	
Louisville	0.0
St. Mathews	6.5
Middletown	12.6
Simpsonville	23.1
Shelbyville	30.7
Prestonia	39.3
Graefensburg	43.0
Bridgeport	46.5
Frankfort	51.5
Alton	60.7
Lawrenceburg	65.2
Salvisa	73.7
Harrodsburg	84.4
Shakertown	92.6
Brooklyn Bridge	97.7
Lexington, noon control	116.4
Georgetown	128.3
Corinth	151.0
Williamstown	162.8
Dry Ridge	166.6
Crittenden	173.6
Walton	180.5
Florence	190.4
Erlanger	192.2
Covington	199.6
Cincinnati, O.	200.8
OCTOBER 10	
Cincinnati	0.0
Reading	9.6
Sharon	13.3
Pisgah	17.3



HALLADAY PATHFINDER LAYING OUT CHICAGO RUN ENTERING INDIANAPOLIS

ITINERARY OF CHICAGO RUN

Mason	21.5
Lebanon	29.3
Ridgeville	36.2
Centerville	43.1
Dayton	52.5
Xenia	68.0
Jamestown	78.9
Washington Court House, noon control	97.4
Frankfort	114.7
Chillicothe	127.6
Circleville	146.2
Bloomfield	165.0
Columbus	172.0
OCTOBER 11	
Columbus	0.0
Worthington	8.6
Delaware	23.7
Norton	32.9
Waldo	34.6
Marion	43.9
Little Sandusky	55.8
Upper Sandusky	63.1
Lovell	68.4
Alveda	81.4
Fostoria	89.0
West Mill Grove	96.5
Bradner	104.0
Pemberville	110.8
Stoney Ridge	120.2
Toledo, noon control	131.0
Erie, Mich.	141.8
Lasalle	147.3
Monroe	151.8
Trenton	174.0
Sibley	178.0
Wyandotte	189.2
Detroit	190.0
OCTOBER 12	
Detroit	0.0
Redford	12.3
Dean	18.0
Farmington	19.1
Novi	24.3
New Hudson	31.6
Brighton	40.2
Howell	50.1
Fleming	55.1
Fowlerville	58.6
Webberville	63.7
Williamstown	69.4
Okemos	77.1
Lansing, noon control	83.7
Eagle	98.0
Portland	105.9
Saranac	124.8
Lowell	131.6
Ada	140.2
Grand Rapids	150.3
OCTOBER 13	
Grand Rapids	0.0
Cutlerville	8.6
Wayland	21.0
Bradley	24.0
Martin	30.3
Plainwell	36.7
Kalamazoo	48.6
Alameda	61.3
Paw Paw	67.0
Decatur	77.2
Dowagiac	92.2
Pokaton	98.7
Niles	106.7
South Bend, Ind., noon control	117.6
New Carlisle	131.5
La Porte	144.3
Westville	156.4
Valparaiso	167.0
Wheeler	174.6
Hobart	179.5
Highlands	190.8
Hessville	193.1
Calumet	195.9
East Chicago	196.9
Whiting	200.5
South Chicago, Ill.	205.1
Chicago	218.5

CHICAGO MOTOR CLUB MEN ENTERING OHIO

Chicagoans Lay Out Route

CHICAGO, Sept. 6—The Halladay pathfinder, in charge of J. P. Dods, of the Official Automobile Blue Book, returned to Chicago Monday after a week on the road, in which time the route for the Chicago Motor Club's fifth annual reliability on October 6-13 was laid out. The trail runs through five states—Illinois, Indiana, Kentucky, Ohio and Michigan—and the pathfinders declare it to be the most picturesque route ever laid out for a Chicago run, besides penetrating a territory which looks good from the makers' point of view.

The towns through which the tour passes are all good sized and the inhabitants are deeply interested in motoring. A hearty reception was accorded to scouts in each of the towns and the columns of the local press were filled with stories of the trip. In Kentucky and southern Indiana the scouts found scenery that made even blase George Daubner, driver of the Halladay, who had laid out the St. Paul-

Helena and the Canadian tours, express admiration.

Large cities were chosen for the night stops—Indianapolis, Louisville, Cincinnati, Columbus, Detroit and Grand Rapids—and Sunday will be spent in Louisville. The total distance is 1,348 miles. There was only one change made in the original route, French Lick being passed by. The roads selected are mostly stone and macadam, the scouts declaring that not 5 per cent of the roads is dirt. There are some hills in southern Indiana and Kentucky that will test the cars.

MEETING OF THE N. A. A. M.

New York, September 6—Special telegram—The most important feature in conjunction with the meeting of the National Association of Automobile Manufacturers today was a recommendation from this organization to the Manufacturers' Contest Association that a change be made in the 1911 contest rules of the A. A. A. governing reliability runs. The recommendation was to the effect that the rules be immediately changed so a grade 4 reliability contest can be held without the entries being registered stock cars.

This recommendation was made at the request of President Hooper, Counsel Terry and Chairman Butler of the American Automobile Association and was made so that the present Glidden tour can be competed for by unregistered cars. The recommendation will be considered by the Manufacturers' Contest Association at its meeting tomorrow. Members of the N. A. A. A. M. are generally favorable to the change.

If the change is made it will allow private owners to enter the tour with cars which are not registered. This change, if made, will only effect grade 4 contests, which penalize for lateness at controls only, and do not take into consideration penalties for work on the road or final technical examinations.

Another important matter was the receiving of a recommendation from a special committee of the Manufacturers' Contest Association on the question of the future of contests. The M. C. A. committee brought up the matter of the national organization financing the contest board, the contest board being merely a body for the sanctioning of contests. The matter was immediately referred to the contest committee of the N. A. A. M., which committee will report the matter at the October meeting.

Philadelphia representatives presented to the N. A. A. M. the outline of plans of the organization of an insurance company solely for the control of motor car insurance, which would cover every form of accident, fire, theft, etc. The proposed organization of such a company is the outcome of the dissatisfaction in settling present motor car insurance claims. No definite action will be taken in the matter by the N. A. A. M.

CHICAGO PATHFINDERS ON THE INDIANAPOLIS SPEEDWAY

Makers Draw for Garden Show Space

Buick Company Gets Choice of Position in Annual Exhibition Promoted by Automobile Board of Trade and Which Will Be Held in New York Next Winter—Other Meetings

NEW YORK, N. Y., Sept. 6.—Special telegram—The first official act of the Automobile Board of Trade in connection with the 1912 show at Madison Square garden took place at 4 o'clock this afternoon at headquarters, it being the drawing for positions. The order of drawing was determined by the total value of cars manufactured by the different makers for the fiscal year up to June 30. This output was determined from the figures of the recent A. L. A. M. and sworn statements of the different makers for their product from January 1 to June 30.

The order of first choice fell to the Buick Motor Co., which selected position 14 on the main floor. This is immediately in front of the entrance on the right. Second choice went to the Overland, which took position 15, in the center on the left. The order of the remainder in the oval in the center of the garden floor is: E-M-F, Cadillac, Packard, Maxwell, Pierce, Chalmers and Hudson. The drawings beneath the gallery on the first floor in order are: Mitchell, Reo, Stoddard-Dayton, Oakland, White, Peerless, Locomobile, Oldsmobile, Stevens-Duryea, Winton, Pope-Hartford, Lozier and Franklin. Marmon had the opportunity of the last place on the main floor, but preferred a position in the first balcony, thus giving Stearns the last available place on the ground floor.

The order of drawing for the first balcony was: Thomas, Everitt, Alco, Buick, Knox, National, Autocar, Premier, Elmore, Columbia, Jackson, Pullman, Haynes, Moline, Moon, Selden, Corbin, Lambert, American, Matheson. The drawing for exhibition hall on the ground floor was: Mercer, Case, Cartercar, Inter-State, Simplex, Amplex. The Speedwell had the preference of drawing before the Amplex, but preferred a position in the second balcony. The others in the second balcony in the order of drawing are: Garford, Ohio, Palmer & Singer, Marquette, Daimler, Atlas, McIntyre. These occupy but one side of the balcony, and the other side is given over to motor cycles. The usual space will be devoted to accessories.

The show will be a duplicate of last year; namely, an exhibition for pleasure cars and accessories the first week and the second week devoted to commercial vehicles and accessories.

A. A. A. PLANS ROAD CONGRESS

New York, Sept. 6—Special telegram—At today's meeting of the executive board of the American Automobile Association the national good roads board was authorized to arrange for a federal aid good roads meeting to be held in Washington, D. C., in September. The matter will be entirely in charge of Chairman Diehl of the good roads board.

The North Dakota State Automobile Association was admitted to membership in the A. A. A. It is made up of three clubs and 200 individual members. This makes a total of forty state associations in the parent body, with an aggregate membership of over 50,000. The Bannock Country Club of Idaho and the Greensborough and Winston-Salem clubs were admitted to membership.

The matter of the Glidden tour was taken up. At present there are thirty-five entries in and it was expected that seventy-five will be received by the closing date. This tour is to be a good roads boosting proposition and the majority of the entrants are private citizens of the south. In order to make the run more popular it is understood the Manufacturers' Contest Association will recommend the abolition of the stock car technical examination in conjunction with this run.

CHICAGO PATHFINDERS JOGGING THROUGH MICHIGAN

Lake Tahoe Run Is No Pleasure Jaunt

Recent Reliability Pronounced Hardest Ever Contested in Northern California, Yet Seven of the Fifteen Cars Make Perfect Scores—Pace Tells on Many—Incidents of the Tour

SAN FRANCISCO, Cal., Sept. 1—The hardest endurance run ever held in northern California has just been completed. It was a 4-day endurance test between this city and Lake Tahoe and return, a distance of 520 miles, a great deal of which is through the Sierra mountains, rising to a height of 7,000 feet. Two dozen cars took part in the run, but only fifteen of these were officially entered as contestants. Of these fifteen, seven secured perfect scores, as follows:

American 50, entered by the local branch of the American Motors Co. and driven by Stanley Gawne.

Buick 26, entered by the Howard Automobile Co. and driven by Claud McGee.

Buick 30, entered by the Howard Automobile Co. and driven by Fred E. Gross.

Elmore 30, entered by A. J. Smith and driven by Bruce W. Aurandt.

Flanders 20, entered by Studebaker Brothers and driven by Stanley Jonas.

Franklin 18, entered by the Franklin Automobile Co. and driven by A. S. Chisholm; official pilot car.

Winton six, entered by the Winton Motor Car Co. and driven by Harry L. Owesney, manager of the local Winton branch.

The course embraced some of the most difficult roads to be found in northern California. Only eight of the fifteen contesting cars survived the ordeal. The second day's run through the Sierras and up over the summit brought grief to several of the machines. An Elmore runabout, driven by A. J. Smith, was late because of several tire punctures. A Winton six, entered and driven by Ed Young, a private owner, was late because the owner refused to push his car over the mountain roads at the fast pace called for by the schedule. A Franklin runabout entered by John R. Taylor, the Oakland agent, had some trouble and did not finish on time; and two Flanders also were late. One of these cars was driven by Miss Helen Weaver, the young daughter of Chester N. Weaver, general manager of Studebaker Brothers Co. of California, who was the only woman driver in the contest.

The other Flanders was put out of the running temporarily by a collision with the Lambert, which occurred while the Flanders was standing on the road repairing a puncture. Owing to this fact, the other competitors voted to restore the perfect score of the little Flanders and permit the car to change a bent axle.

The last day's run brought grief to the Lambert and the Flanders which had been in collision before. The Lambert broke a gasoline pipe connection and was out of the running at Livermore. The Flanders was disqualified for not remaining the necessary 1 hour at Livermore.

Last year many cars made perfect scores and the entrants complained that the schedule was not fast enough. This year it called for an average of a little more than 20 miles on the level and a trifle over 15 miles an hour through the mountains. There were few complaints on the score of slowness.

The weather through the valleys was hot, and this caused tire trouble. Then came bursts of speed to catch up, and more tire trouble. The road through the Sierras, winding in and out among the famous snowsheds that protect the overland trains, is a very difficult one to take at high speed. The cars were compelled to cut around corners at a pace that many regarded as dangerous.

BUFFALO RUN STARTS

Bolivar, N. Y., Sept. 6—Special telegram—Seventeen contesting cars made the start from Buffalo this morning on the first stage of the second annual reliability tour given under the auspices of the Automobile Club of Buffalo. Heavy showers last night made the roads out of Buffalo unspeakably bad, and as the result few cars escaped penalties. The morning's run was through a very hilly country and extra water and gasoline were required by the majority of the cars during the morning.

The following started: Three Flanders runabouts, a Krit, a Ford, Paige-Detroit, Oakland, Warren, three Maxwells, Schacht, Everett, Lion, two Ohios and Hupmobile. The mileage for the day totalled 211, and owing to the terrific hills and heavy going practically all the cars will be penalized. Of the cars certain to be penalized are the following: Maxwell, 1 and 2; Flanders, 3 and 4; Ford, 21; Paige-Detroit, Warren, Schacht, and Ohio.

HOOSIERS VISIT CHICAGO

Chicago, Sept. 5—More than 200 motorists from Indianapolis visited Chicago Labor day, coming here in E-M-F and Flanders cars, there being sixty machines in the party. The Hoosiers drove up Sunday and returned home today. Monday was devoted to sightseeing.

SEVEN OF THE CARS THAT PARTICIPATED IN LAKE TAHOE RELIABILITY

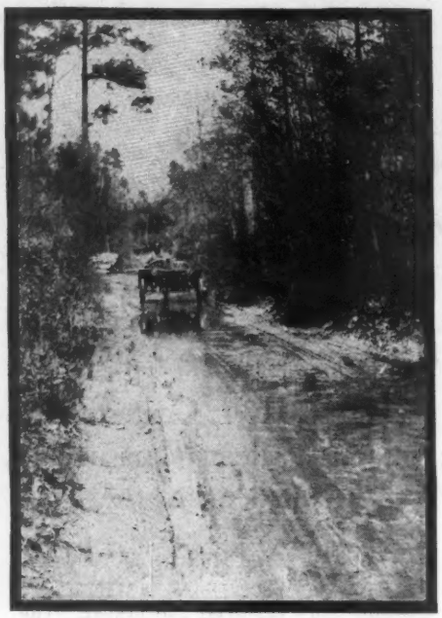
Routes and Touring

ANOTHER NIAGARA FALLS REQUEST

WATERTOWN, Wis.—Editor Motor Age—As an ardent reader of Motor Age, I would be pleased to have any information on a good route from Chicago to Niagara Falls.—A. Kuenzi.

On the way to South Bend the popular road takes you through Jackson park, Bryn Mawr, South Chicago, Hammond, Highlands, Hobart, Valparaiso, Westville, LaPorte and New Carlisle. The South Bend-Buffalo portion is as follows: Mishawaka, Goshen, Ligonier, Kendallville, Bryan, Wanton, Toledo. From Toledo to Cleveland, a good settled summer weather route is via Fremont, Castalia, Sandusky, Huron, Lorain, Cleveland. This will be found an exceedingly delightful run, but is not recommended as the best all-year-round route because of the clay, which makes difficult traveling after rains. In case of bad weather an alternate route would be Toledo, Woodville, Fremont, Clyde, Bellevue, Monroeville, Norwalk, Berlinville, Birmingham, Henrietta, Amherst, Elyria, Ridgeville, Dement, Dover and Cleveland. From Cleveland to Buffalo you will have good roads most of the way, but because of the clay the roads are heavy after rains. The towns passed through are Willoughby, Madison, Geneva, Ashtabula, Conneaut, West Springfield, Girard, Erie, Westfield, Freedonia, Irwing, Buffalo. It is only a distance of 22 miles to Niagara through Tonawanda.

The return trip can be made over Canadian soil motoring through Hamilton and London to Detroit, Mich., the intermediate towns being St. Davids, Homer, St. Catherines, Jordan, Beamsville, Grimsby, Winona, Stoney Creek, Hamilton, Ancaster, Alberton, Brantford, Woodstock, Ingersoll, Thamesford, London, Lambeth, Delaware, Strathburn, Wardsville, Clachan, Ridgetown, Blenheim, Dealtown, Leamington, Ruthven, Essex and Windsor. The best road from Detroit to South Bend, although the longest, is through Niles, Summerville, Pokagon, Dowagiac, Decatur, Paw Paw, Kalamazoo, Galesburg, Battle Creek, Marshall, Albion, Parma, Jackson, Chelsea, Ann Arbor, Ypsilanti, Denton, Canton, Wayne and Dearborn. This longer route presents better roads and hotel accommodations than can be found on the shorter one.



AFTER A RAIN IN SOUTH CAROLINA

To take in Port Huron would involve a run of 123 miles from London, Canada, to Detroit, Mich., and you will find well-kept gravel roads practically all the way. The towns passed through are Hyde Park, Adelaide, Warwick Village, Kertch, Sarnia, Port Huron, St. Clair, Muttonville and Mount Clemens to Detroit.

Detailed directions can be found in the Automobile Blue Book.

AN ADVENTUROUS TOUR

Hartford, Conn.—Editor Motor Age—In view of the fact that there seems to be a revival of interest in transcontinental touring, a brief chronicle of conditions encountered and overcome by Mr. Sharwood and Mr. Krause, who successfully concluded their 5,045 mile trip from Hartford to San Francisco by way of New York and the southern route in a Motorette, might be of timely interest.

Starting at the worst time of the year, through snow 9 inches deep, and against the advice of one of the best touring experts in America, the trip presented every conceivable condition of road and weather. Sixty-two miles of Virginia mud 8 inches deep, 6 weeks of rain with but 4 pleasant days, over 50 miles of roads literally under water, through 6 Mississippi swamps heretofore uncrossed by a motor car, changes in temperature from below zero at Staunton, Va., to over 100 degrees above near Parker, Ariz., 80 miles of sand river beds and rocks in Texas and New Mexico, and finally crossing the waterless and burning deserts of Arizona and California without a strip of canvas or a shovel, fully presented that old adage, "Variety is the spice of life."

To vary the monotony, they happened to witness a negro lynching, had a little experience with the recent Mexican revolution, saw a good old-fashioned Mexican bull fight, spent 3 days in jail for riding the railroad tracks, and learned many times what it meant to be truly cold, hot, thirsty and hungry.—E. F. Dustin.

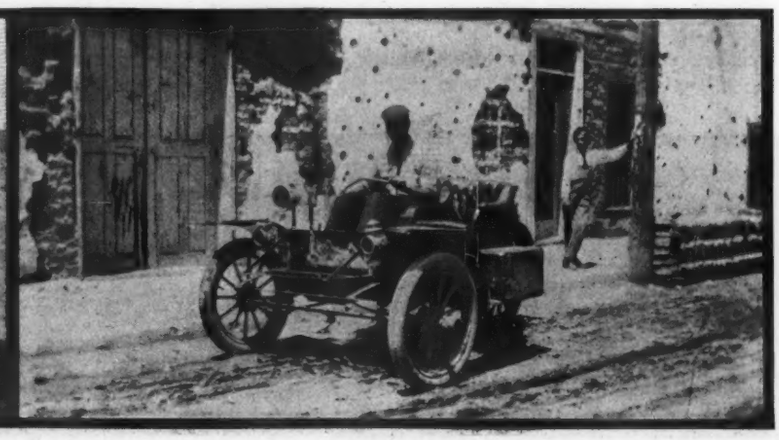
ACROSS ARKANSAS

Mena, Ark.—Editor Motor Age—Motor tours are so frequent in certain parts of the country and have been written up so often that they cease to attract the attention they once did, but there still are a good many places and many persons to whom they are a novelty.

This particular tour will be of interest because of the fact that it has extended over an unfrequented route a good portion of the way diagonally across the state of Arkansas from southwest to northeast.

The itinerary of the trip was as follows: We left Mena, Ark., the afternoon of

A STRETCH OF ROAD IN ALABAMA



WHERE THE FIGHTING WAS THICKEST DURING THE MEXICAN REVOLUTION

Information

ALL SOUTHERN CALIFORNIA ROADS ARE NOT GOOD ROADS

July 5 with a complete camping outfit of tents, cots, cooking outfit, etc., for six persons, the car being loaded till the springs almost rested on the axles. Right here is a good time to give some advice to motorists about to take their first tour: Don't overload.

The first evening we only drove about 25 miles, to Abernathy's big spring, where we set up our first camp. We had not been on the road 30 minutes till it began raining. We seemed to just keep right along with the rainy weather, for we had but one day's running in which it either did not rain on us or it had rained there a few hours before, so that roads that otherwise would have been good were very bad.

The morning of July 6 we loaded up and ran into Hot Springs by the middle of the afternoon. After going to some of the parks and doing other sight-seeing we drove out a couple of miles and camped for the second night. Next morning, July 7, we ran into Little Rock, via Benton, finding excellent roads most all the way. We passed several gangs of convicts working on the roads. We arrived in Little Rock for dinner and stayed there 3 days visiting friends and sight-seeing. On Monday afternoon, July 10, we started out via McAlmont, Cabot, Ward and Beebe, arriving in Searcy abount sundown after going over some very bad roads through Cypress Bayou bottoms. Tuesday morning, July 11, it was raining and continued to rain until 11 o'clock, but as soon as it stopped we got in the car and started for Newport. A few miles out of Searcy we were ferried across the Little Red river, and the ferryman volunteered the information that a man lived on the other side who had a good team of horses who would pull us up the opposite bank. Well, that bank did look bad, but our Ford climbed right out just like it had to. After passing through Judsonia, Bald Knob, Russell and Bradford, over roads so muddy as to be almost impassable, our little car, whose engine never faltered, brought us to the edge of the White river bottoms, and we camped for the night. Next morning, July 12, we continued on to Newport right along the bank of the White river, going through some frightful looking mudholes and over some of the roughest corduroy roads ever constructed.

From Newport we started out via Grubbs, Pitts and Cash to Jonesboro. Just after leaving Pitts we had our first and only accident on the whole trip—breaking a driving shaft. Fortunately it was a good camping place and only a few hundred yards from the Cash or Cache river, which we found to be literally alive with fish. We stayed there 6 days, fishing and squirrel hunting, and seeming to be unable to get a new shaft. A blacksmith was called on to weld the broken shaft, which is still in the car.

On July 18, about noon, we left this camp, passed through Jonesboro and camped that night at Paragould. We ate dinner at St. Francis, Ark., on the 19th, passing through Marmaduke, Rector and Piggott. That afternoon we crossed the Arkansas-Missouri state line over a toll bridge across a muddy looking river, going through Campbell, Mo., and camped for the night near Aquilla.

July 20 it was raining, but we pulled out and found some of the slipperiest red clay hills we had yet come across. On one hill we skidded into the ditch at the side of the road and had to back down to the bottom and make a fresh start and by spreading brush on the road avoided skidding off the road again. We ran in the mud and rain all that day, going through Allenville, Jackson and Perryville, besides numerous small towns over roads that would have been fine but for the ever present rain, and camped at Lithium Spring that night on the edge of the Mississippi river bottom. We were told that we could not get across the 10 miles of black mud to Claryville on the river bank opposite Chester, Ill., but having confidence in our car to accomplish anything we started out next morning to do the impossible. We made the 10 miles in 1 hour and were ferried across the Father of Waters onto the Illinois soil. That night we camped in the edge of a wheat field some miles west of Centralia. The roads here were dry and in some places dusty. Here we seemed to

ENCOUNTERING A ROCKY ROAD IN MEXICO

FOLLOWING THROUGH THE TEXAS PRAIRIE LAND

be in the center of the drouth-stricken country. Corn here was a total failure; wheat was fairly good; oats very poor. Up to this time all crops looked splendid. We saw our last cotton field soon after entering Missouri; instead, it was wheat, oats and corn.

Our last day's run was from south of Centralia to Decatur—our destination. The odometer gave out this day, but we estimated the day's run at about 140 miles and it was the only day we were not rained on or had to plough through mud. When within 50 miles of Decatur corn began to look much better and at Decatur was good. We rolled into Decatur about 6 p. m., Saturday, all in fine spirits and good health.

We certainly missed the good water we were used to at Mena, and at some places we were bothered with mosquitoes, which are almost unknown in Mena. We passed through the oil district near Centralia, Ill. There miles of the public highways are sprinkled with crude oil and are therefore dustless as well as mudless. Our running time was about 5 days—the distance between 600 and 700 miles—our odometer going back on us prevented a correct record of the mileage. Except during or right after heavy rains the roads taken as a whole would be good all the way except a few miles of sand.

On our return trip we may go via Kansas City, then south through Ft. Smith, just to see the country. We met numerous tourists on their way south and each said, "Today is the first rain we have had the whole trip." All along our trip we were gladly welcomed because we "brought a good rain with us." But in spite of this we enjoyed the trip as a whole and will be ready to take another the first chance. Our tire troubles were limited to one puncture the entire trip.—I. M. Davis.

SCENIC ROUTE RECOMMENDED

Moline, Ill.—Editor Motor Age—I am contemplating a motor trip to Detroit, and from there expect to ship my car by boat to Buffalo and then tour. Will Motor Age kindly give me a tour of about a week to 10 days' duration around Buffalo, also one including the White mountains? Also which route is the better from Chicago to Detroit, the one through Coldwater or through Battle Creek?—F. W. Rank.

You could not do better than take what is called the scenic tour through New York state, with the White mountains as your objective point, going from Buffalo to Watkins Glen, where you strike this scenic route, thence to New York city through the Delaware water gap, skirting the sound into Connecticut, following the Naugatuck and Housatonic valleys into the Berkshire hills, through the Green mountain region to Burlington, with a detour into the White mountains, and returning through the Adirondacks to Watkins Glen via Saratoga Springs.

Buffalo to Watkins Glen, 152 miles, a good day's run is through Williamsville, Clarence, Pembroke, Batavia, Byron, Churchville, Rochester, Canandaigua, Hopewell, Flint, Halls Corners, Benton Center, Himrod, Starkey, Watkins. Entrance to the glen is about half a mile from Lake Seneca.

Covering a distance of 179 miles, the run from Watkins Glen to the Delaware water gap passes through a fine agricultural section through Odessa, Van Etten, Candor, Owego, Appalachin, Vestal, Binghamton. South from Binghamton to the water gap is through a particularly scenic country, over macadam roads, stony roads, and dirt roads, the towns being Kirkwood, Great Bend, Pa., Hallstead, New Milford, Providence, Scranton, Elmhurst, Moscow, Tobyhanna, Mount Pocono, Swiftwater, Bartonville, Stroudsburg, Delaware water gap.

Leaving the Delaware water gap for New York city, 81 miles, you will encounter fine macadam road almost the entire distance, going through Portland, Meyers' Ferry, Delaware, Bridgeville, Buttsville, Danville, Hackettstown, Chester, Mendham, Morristown, Madison, Springfield,

Latest Bulletins on Roads from Touring Club of America

Editor's Note—At the present time scouts representing the Touring Club of America are engaged in studying road conditions in various parts of the country. Herewith are found reports made by them as to the condition of the highways in New England and in New Jersey which undoubtedly will prove interesting to tourists who are taking advantage of fall weather.

ALONG the coast of New Jersey and through the central and northern part of the state the roads are in only fair to good condition. Practically nothing has been done on any of them this year. In some places the roads are in very bad condition, as follows: Red Bank to Keyport; Perth Amboy, Morristown to Danville; Dover to Kenvil, some parts of the new road, which has been down only a year, are very rough and full of holes.

Lake Hopatcong to Newton is fine, and from Newton to Dingman's Ferry is fair country road; but the hill going down to the river in Jersey is very bad; extreme caution is necessary.

A new trip this year is from Stanhope to Budd's lake, a very attractive spot, and then to Chester. Connections can be made from Chester to Bedminster on a fine road; also from Bernardsville to Mendham on new macadam.

From Portland to the Delaware water gap the road is in very fair condition and should be taken by tourists who want to go through Jersey to the gap. It has been improved considerably and will remain in good shape until October, when it is to be macadamized from Portland to the water gap. Cars are going over it daily without difficulty, so that reports of its bad condition are unfounded. Street cars take up most of the road but are obliged by the town council to stop and let motor cars pass, giving the tourist the right of way. The trolley track is to be moved to the side of the road later in the year, making it a very good road through to the gap in 1912. Over 2,000 cars have been at the Kittatinny during this season.

The great majority of the tourists arriving at the gap by way of the northern entrance have come in via Port Jervis and Milford to avoid Jersey. Tourists coming from the west or arriving at Delaware water gap with the intention of entering Jersey find it impossible to get a license this side of Morristown, a condition causing considerable confusion and annoyance.

Interesting reports are received from New England as follows:

BRETTON WOODS TO DIXVILLE NOTCH—Road in excellent condition. State road improvements between Twin mountain and Lancaster, via Whitefield, unusually good.

DIXVILLE TO RANGELEY LAKE—Unusually good the greater part of the way for dirt road. Rough in spots between Upton and North Newry.

BRETTON WOODS TO PORTLAND—In excellent condition to North Conway. Fair to poor from North Conway to Naples. Unusually good from Naples to Portland. This is considered today to be the best and most direct route between Bretton Woods and Portland.

PORTLAND TO PORTSMOUTH—Considered by the average motorist to be the poorest piece of main highway in the New England territory. Several miles of this road have been greatly improved in the past year, and today the trip is not a hard one provided one will take his time and avoid wet weather.

On route 619 of the Official Automobile Blue Book, the route should read from the following points: 22.0 2.6 diagonal 4 corners, keep straight ahead. Do not turn left as indicated in 1911 book. The better route is direct south from this point through Kennebunk and Wells in preference to going by Kennebunkport, the latter road being very poor with heavy sand.

On route 401 of the Official Automobile Blue Book, the route should read from the following mileage point: 26.5 1.8 prominent right hand road with many signs. Underpass just ahead. Keep left or nearly straight ahead. Do not turn right as indicated in 1911 book. This avoids the very objectionable road through Kennebunkport on account of the heavy sand. Run under the railroad and follow the main highway through Wells and Kennebunkport.

PORTSMOUTH TO BOSTON—In excellent condition, especially in view of the large amount of travel that this route has had this summer.

NEWBURYPORT TO GLOUCESTER AND MAGNOLIA—In excellent condition, making an unusually attractive detour from the main highway through the following interesting resorts: Gloucester, Rockport, Bass Rock, Magnolia, Manchester, Beverly.

BOSTON TO PLYMOUTH—In excellent condition. This is considered to be the most interesting of the two routes between these two points on account of its being through the numerous summer sections. Route 264 of the Official Automobile Blue Book is more direct and in good condition, but passes through an uninteresting section.

NORTH CAPE COD SHORE POINTS—In excellent condition the entire distance. The road between Orleans, Wellfleet and Providence has been greatly improved in the last year and allows the tourist to make the trip on hard road for the entire 28 miles.

On account of the new Cape Cod canal construction, it will be but a few weeks when all the roads, with the exception of one, between Sagamore and Buzzard's Bay, will be closed to travel, and the only entrance and exit on to Cape Cod will be over the new concrete bridge about 3 miles east of Buzzard's Bay station and about 4 1-2 miles west of Sagamore. The Cape Cod Construction Co., the builder of the canal, state that the roads will be properly marked so that the tourist will have little trouble in making desired connections. The new roads that take care of these changes are mostly new, built by the construction company, and will in no way interfere with the pleasure in touring in that locality.

ORLEANS TO PROVIDENCE VIA CAPE COD SOUTH SHORE POINTS—In excellent condition to 2 miles west of Marstons Mills, where the main route is closed for state road construction. The detour is easily covered, and the route from Falmouth to Buzzard's Bay and Providence is in good condition.

PROVIDENCE TO NEWPORT, VIA BRISTOL FERRY—In excellent condition.

PROVIDENCE TO NEWPORT, VIA FALL RIVER—In good condition, with the exception of the rough cobble pavement through Fall River.

PROVIDENCE TO WESTERLY DIRECT VIA WASHINGTON, R. I., ASHAWAY AND HOPE VALLEY—State road the entire distance, with the exception of three miles. This route is 11 miles shorter than the old shore route via Narragansett Pier, but is through an uninteresting wooded section and only desirable for those wishing to reach Providence or Westerly in the shortest possible time.

PROVIDENCE TO NEW LONDON, VIA NARRAGANSETT PIER—In good condition, with the exception of between Westerly and Stonington, where the road is somewhat worn out.

NEW LONDON TO NEW HAVEN—Practically macadam the entire distance, several miles of new state road having been built between East Lyme and Lyme. The new bridge over the Connecticut river was opened August 24 to travel.

A motorist desiring a New York-Boston route, will find the short route greatly improved. The new bridge between Lyme and Saybrook will do away with that portion of the trip that heretofore has been very objectionable in crossing the ferry between these two points.

Logging Routes for Benefit of Motor Tourists

ON Thursday of last week Thomas A. Wilby, who is accompanied by his wife, together with Driver Fred D. Clark, received an official send-off from the Touring Club of America on the first leg of their long motor car round trip of the United States. This tour is scheduled to occupy about 80 days and is under the auspices of the Touring Club of America in co-operation with the Ohio Motor Car Co., of Cincinnati, which furnished the car.

The object of the tour is to log the middle west route, a Pacific slope route from San Francisco to the Mexican border and a Southern return route from Los Angeles across Arizona and New Mexico to Kansas City, St. Louis, Washington, etc.

Round trips of the United States are sufficiently rare to make this one unique in its way. The late Percy Megargel undertook the first one in 1905, but the car was shipped from Portland, Ore., to San Francisco and he was many months en route. Then Mr. and Mrs. Morse, of Lowell, Mass., made a leisurely pleasure circuit of the United States in 1909 with lengthy stops. The only genuine round trip on record, it is claimed, is that of the Mead brothers of Orange, Conn., who circled in the same year, the middle west and Oregon trails within 60 days, camping all the way.

It is a singular fact in the history of transcontinentalism, that until the Touring Club of America logged the Santa Fe trail in 1910, no road data across the continent has been available beyond the Missouri. The middle west, the most important of the three main highways, and the one which has been traversed by several scores of cars since the pioneer year of 1903, is practically terra incognita to the average motorist. In a very short time, however, Mr. Wilby's log of the middle west will be available to the public through the medium of the Touring Club of America and of the Blue Book.

In essence, the road to be laid out and logged will follow the one taken by L. L. Whitman on his record-breaking trips, except that Mr. Wilby will follow the river-to-river road between Davenport and Omaha, while in Nevada, after leaving Lovelock, he will enter California via Carson City and the old Placerville trail, instead of going through Truckee and Colfax.

The Pacific slope route which is now to be logged will follow the historical camino real or Royal road laid out by the Spanish padres for the purpose of linking together the Franciscan missions; while the return log will be made from Los Angeles to New York through the wonder spots and historical regions of Arizona and New Mexico and over the Raton pass to Canon City in order to take in the top of the Gorge and the Skyline drive, two of the greatest scenic drives or engineered highways in the world. Through Kansas the route will be to Kansas City along the Santa Fe trail and thence to St. Louis, Cincinnati and Washington. It is probable that the Mudhen will then be driven to the good roads convention at Richmond, Va.

It is hoped that as a result of logging the southwestern route, motorists will be able to reach the great sightseeing centers, such as the Grand canyon, the petrified forests and rock bridges, the Pueblo villages of Acoma and Isleta and the inscription rock of Zuni, besides the various historical spots connected with the fabled Montezuma.

Mr. Wilby will act as official agent of the office of public roads at Washington, and report on the results of this tour. Side trips will be made to Salt Lake City and Denver and it is expected that about 12,000 miles will be recorded.

A special feature of the trip is that neither camping equipment nor the usual heavy impediments of transcontinentalists, such as block and tackle, are being taken along.

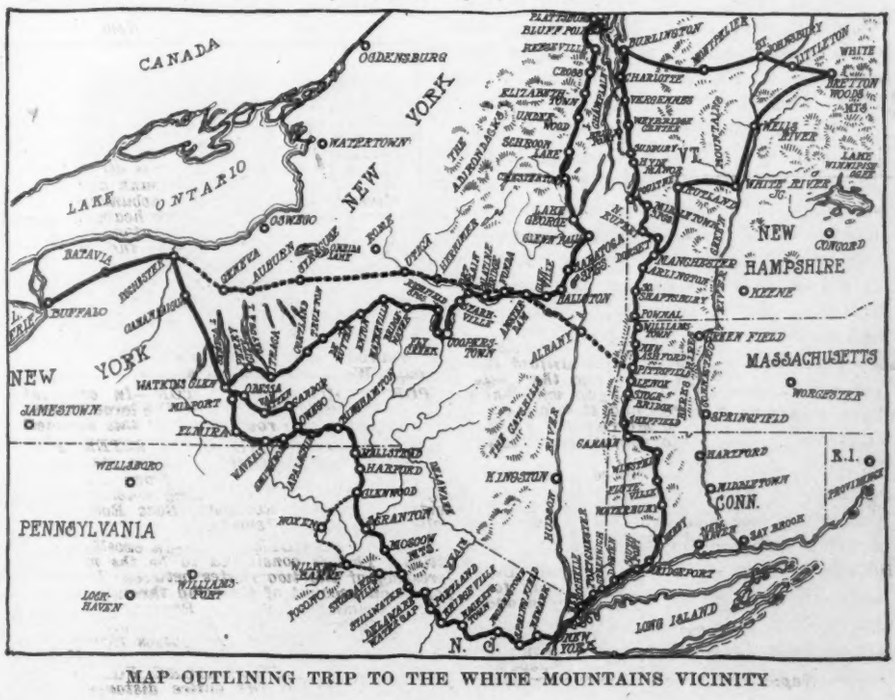
Irvington, Newark, Weehawken, West Forty-second street ferry, New York city. With Waterbury, Conn., your next objective point, 89 miles, skirt the sound as far as Bridgeport, passing through Greenwich, Stanford, Norwalk, Westport; then follow the Naugatuck valley through Stratford, Derby, Seymour, Naugatuck, to Waterbury.

Proceeding north to Manchester, 138 miles, takes you through the Berkshire hills, not only famous historically but renowned for its wonderful scenic beauty, the towns being East Litchfield, Winsted, Sheffield, Great Barrington, Lenox, Pittsfield, Bennington, Manchester. Leaving Manchester, proceed north to Rutland, where you have the option of three routes into the White mountains: One by way of Woodstock to White River Junction and thence up the Connecticut valley; or going north to Rutland and Lake Champlain as far as Burlington, then directly east through Montpelier, St. Johnsbury, Littleton, Bethlehem and Bretton Woods; or a third going north from Manchester as outlined in the map below.

Returning from the White mountains to Burlington, ship your car across Lake Champlain to Plattsburg, then motor to Elizabethtown. From Elizabethtown to Scroon lake the route is over a mountain road through some of the wildest parts of the mountains. The trip from Scroon lake to Saratoga Springs is over one of the New York state oiled highways. A run of 83 miles from Saratoga Springs to Cooperstown is through Ballston, Charlton, Glenville, Amsterdam, Tribes Hill Fonda, Canajoharie, Nelliston, Fort Plain, Starkville, Springfield Center, Cooperstown. The return to Watkins Glen, 140 miles, is through Oakville, Richfield Springs, West Winfield, Waterville, Eaton, De Ruyter, Cortland, Reynoldsville, Watkins Glen.

It may be you will not care to take such an extended trip as outlined above. This may be shortened by eliminating Watkins Glen, Delaware water gap and New York, and going direct to Albany from Buffalo through Rochester and Syracuse, and from Albany to Pittsfield, the heart of the Berkshire hills. Such a route would be: Buffalo to Rochester, 74 miles, through Clarence, Batavia, Bergen, Churchville, Rochester; Rochester to Syracuse, 98 miles, through Pittsford, Victor, Canandaigua, Hopewell, Geneva, Seneca Falls, Auburn, Elbridge, Syracuse; Syracuse to Unita, 51 miles, through Fayetteville, Oneida, Vernon, Kirkland, Utica; Utica to Albany, 95 miles, through Deerfield, Herkimer, Little Falls, Fonda, Amsterdam, Schenectady, Albany; Albany to Pittsfield, 37 miles, via Rensselaer, Schodack Center, Nassau, New Lebanon Center, Shaker Village, Pittsfield. From Pittsfield go north to Manchester and follow the motor route which is outlined above.

For complete running directions, etc., you are referred to the 1911 volumes 1, 2 and 3 of the Blue Book. The trip via Kalamazoo, which is given above, is the preferred one.



MAP OUTLINING TRIP TO THE WHITE MOUNTAINS VICINITY

HAS FAITH IN MAGNETO

Detroit Subscriber Differs With A. D. Carpenter in Matter of Ignition

DETROIT, Mich.—Editor Motor Age—I am not in sympathy with the stand recently taken by A. D. Carpenter of Sauk Center, Minn., in favor of the dry cell or storage battery as compared with the present type of magneto. He claims that the magneto is a machine that the ordinary buyer cannot understand and that if he were able to understand it he would not be able to repair it if anything went wrong. The magneto is not such a complex device. It has few parts and it does not require a college professor to understand it.

The armature and the magnets are simple, yet they are the most complex parts. The armature on a high-tension instrument is like an ordinary spool of thread with two kinds of thread wound on it: First wind some coarse linen thread and then fill it up with a fine silk thread. The linen thread is called the low-tension circuit, the silk thread the secondary circuit. In the armature the linen thread is a fairly coarse copper wire well insulated; the silk thread is a very fine wire well insulated.

Everybody is familiar with a common horseshoe magnet, they all know that it will pick up pins and steel and soft iron parts. Nearly everybody has seen the old experiment of scattering iron filings on a sheet of paper and moving the ends of a magnet beneath the paper. Immediately the filings arrange themselves in curved lines from one pole, or end, of the magnet to the other. This proves that there is some invisible force acting between the ends of the magnet. The magneto maker jumped at this point and decided to make use of the force. In absence of a better name he called it "lines of force." He discovered that if a coil of wire is rotated in these lines of force cutting them at right angles that a current of electricity is set up in the wire. This is the secret of the magneto. In this way the linen thread-on-the-spool idea was used, copper wire being adopted. The coil was rotated and the current set up. But the current set up was not strong enough to jump across the gap in the end of the spark plug, just as water in a hose at a fire has not force enough to be thrown to the top of a ten-story building. To get the electric current stronger was an easy problem. It was not a new one, rather a scheme that has been understood from the early days of electricity. The following paragraph tells how it is done.:

There is a law in electricity that if you take a coil of copper wire shaped like a valve spring but with much finer wire and many more coils, with the ends united and put out side of this another valve-spring like coil of fine wire with many times more turns and not let the two touch in any point, that when a current flows through the inner coil and the current is suddenly stopped there will be a current of high-tension electricity set up or induced in the outer coil. The two coils are not connected to each other in any way yet this current is set up in the outer when the current in the inner one is opened and closed, or to be plain, allowed to flow for a very short time and then suddenly stopped. This in electricity is known as induced current. You must have a current in the inside coil and you must make and break it.

Returning again to the magneto, this is exactly what we have. We get a current in the inner wire of the armature, or in the primary winding. We have to make and break this current very frequently and to do this the breaker box mechanism is needed. This breaker mechanism is a simple mechanical construction that any one can understand.

With this done the current is induced in the outer coil of the armature or the secondary winding. Nothing then remains but to distribute it to the four plugs, which is identical with a timer as used in any battery system except that it handles a high-tension current.

When analyzed the magneto is, all told, a simple device and if any car owner does not understand it he should and he will not find it a specially difficult part of his car to understand. The magneto is here to stay. In these days of electric ignition, electric lights and perhaps electric self starters, there is not any reason why a combination instrument capable of generating enough current for all three needs cannot be devised and manufactured.—Magneto.

While not eliminating all difficulties connected with the use of a magneto, a thorough knowledge of the operation of the device will do much toward removing the ignition troubles of the novice.

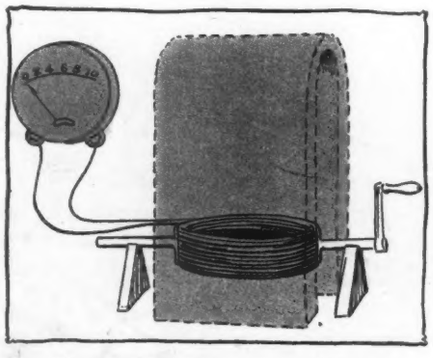


Fig. 1—This illustration explains how a current of electricity is generated in a small copper wire coil which is rotated by hand in the field of the lines of force between the ends of a magnet. The indicating instrument shows the presence of the current. The faster the coil is rotated the stronger the current, and the more coils of wire the stronger the current. This coil corresponds to the primary winding on the armature of the magneto. In the magneto the coil makes up what is known as the armature of the instrument

The Reader

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired

MOTOR BOAT ENGINE

St. Louis—Editor Motor Age—Will Motor Age kindly give us the following information:

1—What should be the relative volume of compression space in the cylinder to volume of cylinder in a 10x10-inch gasoline engine, for best and most economical working? In other words, what percentage of volume should be left when piston head is at the highest point in the cylinder? This motor is on a launch and I am greatly troubled with premature firing and believe high compression to be the cause. Is that right?

2—What should be the length of the stroke of a low-speed marine engine, of this bore, according to modern construction ideas?—C. K. Norris.

1—We would recommend a compression of 45 pounds for a motor of this type. If this were a valve-in-the-head motor and the diameter of the combustion chamber the same as the diameter of the cylinder, you should have a space of 5 inches between the piston head at its highest point to the top of the combustion chamber.

2—According to the present custom in low-speed marine engines a stroke of 12 inches would be satisfactory for a motor with a 10-inch bore.

WATER IN CARBURETER

Chicago.—Editor Motor Age.—As a reader of Motor Age I would like the following questions answered through the Readers' Clearing House columns:

1—What is the cause of water in the carbureter?

2—What is the cause of spitting in the muffler?—Barney Wiskowski.

1—Water in the carbureter is due to water in the gasoline. Water enters gasoline due to evaporation caused by rises in temperature. When this water gets into the carbureter nozzle it is harder to suck out than the gasoline, due to its greater weight, and, of course, when it is being sucked in by the motor the mixture is too weak and spitting results.

2—Spitting in the muffler is due to miniature explosions there. To have an

Clearing House

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated

explosion in the muffler you must first have an explosive mixture in it, and then you must have enough heat to ignite the mixture. The only way an explosive mixture can reach the muffler is through one of the cylinders. If your mixture in the cylinders is correct it will be all burned up there in the explosion, but if your mixture is wrong it will not all be burned and some of it will pass out into the muffler, not being burned in the cylinder. Sometimes this happens due to the exhaust valve not seating, and some of the mixture escapes on the compression stroke, and when the ignition takes place a part of the flame escapes under the valve and ignites the escaping gas clear back to the muffler. Often a muffler explosion is due to a very late spark, a spark which takes place just before the exhaust valve starts opening and when the compression is low, the result being that the mixture burns slowly, and the combustion is not complete when the exhaust valve starts opening, and after the next explosion the unburned gas is ignited.

FORD TIRE SIZES

Mena, Ark.—Editor Motor Age—Please tell me through the Clearing House columns what size tires will fit a model T Ford other than 30 by 3½ and 30 by 3 and on what basis do tire manufacturers call tire sizes? At first thought a 30 by 3½ and 30 by 3 tire would call for the same diameter wheel.—I. M. Davis.

Either of the odd-sized tires, 31 by 3½ or 31 by 4 may be used on the Model T Ford. Tire sizes are based on the diameter of the tire from the outer edge on one side to the outer edge on the other and on the thickness of the tire through the center. For instance, a 30 by 3½-inch tire goes on a rim 23 inches in diameter. The so-called over-size tires, that is, those 1 inch greater in diameter and ½ inch thicker, will fit the rims of the standard sizes. A 30 by 3-inch tire goes on a rim 1 inch greater in diameter than a 30 by 3½-inch tire will take.

The table published in the columns of the Readers' Clearing House for last week will give the over-size tires that will replace tires of standard sizes. All of the tire makers at the present time do not make over-size tires, but the majority of them do.

DEFENDS HIGH-GEAR RATIO

Hoosier Believes Motor Should Not Be Raced to Gain Power

Indianapolis, Ind.—Editor Motor Age—I should like to advance a few ideas in regard to the editorial of August 17, "Gearing Big Cars Lower." One very important point has been overlooked which changes the whole argument.

What is the worst result of gearing a car lower than necessary to attain its maximum speed? That result is, that for any given speed the motor has to revolve faster than it would with the higher gear ratio, and is worn out just that much more quickly. Everybody knows how a racing driver will frequently gear his motor slightly higher than necessary to attain his car's maximum speed, say two and one-half instead of two and three-quarters, just for the purpose of keeping his motor from going to pieces during the race. Now how much longer life to his motor will the driver of a car in ordinary use gain, driving 30 and 40 miles per hour, as against the racing driver's 70 and 80? If his car is geared down so that his motor must turn as fast as in racing, to be sure, his motor is not as hot, or is it developing as much power doubtless as the same motor in racing use, due to its having slow-acting low-lift cams, and not being timed for racing, but its bearings and its pistons are wearing out almost as fast. And in some respects it may be wearing out faster for few strictly stock motors are perfectly balanced, and it will be shaking itself loose. As to flexibility, 7

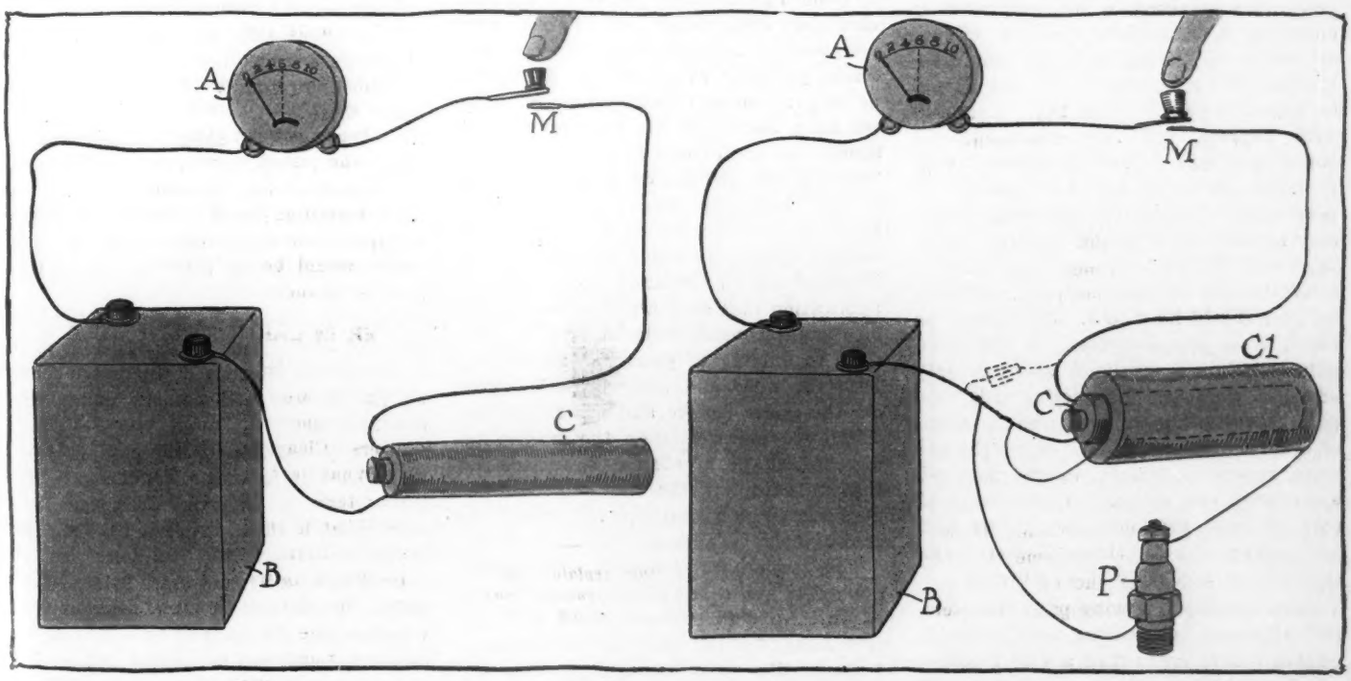


Fig. 2—Explaining the Magneto. The battery B delivers a low-voltage current through the coil C; A is an instrument to indicate the presence of the current. At M is an opening in the circuit by which the current can be opened and closed; this corresponds with the breaker box mechanism of the magneto. The coil C is a primary with a soft iron core inside of it. The very rapid opening and closing of the circuit in a magneto is accomplished by the breaker box mechanism

Fig. 3—Explaining the Magneto. In this illustration the primary coil C is placed inside of a secondary coil CI. The two coils are entirely separated from each other. The spark plug is in the circuit with the coil CI. When the primary current is opened and closed at M a current is set up in the coil CI and it is of high voltage to jump across the gap in the spark plug P. The circuit through the coil C must be rapidly opened and closed at M, otherwise a current will not flow in the coil CI

miles per hour is as slow as any one need drive on high gear.

The reason many cars even geared low, are not able to go as slow as they should, is because their motors are dirty. A few years ago few racing cars would run steadily on high gear slower than 18 miles per hour. Now, on account of better construction and improved carbureters, a fine example of which is one made right in Chicago, it is a mighty poor racing car that won't hold 8 miles per hour steadily on a smooth, level pavement.

Study it out, and it will be found that the best gear for any car, no matter what, racing, roadster or touring, is the highest gear—for example, to define highest, a two and one-half gear is higher than a three gear—that can be used whereby the car can be driven at its maximum possible speed. This is considering the maximum brake horsepower of motor, lower revolution per minute, at which this is developed and speed at which this brake horsepower of motor will drive the car, account of its weight on hills and in accelerating and which determines friction resistance, and chiefly its wind resistance.

For example, consider a certain stock racing car whose motor may develop a maximum horsepower of 86 at 1800 open and may be geared best 2.02—34 inch wheels—or 2.14—36 inch wheels. For ordinary driving its driver will prefer the same ratio. Suppose it is equipped with a strictly morally stock motor developing 75 horsepower where it could do 90 miles per hour! with 86 horsepower it can do only 82 miles per hour; say with 75 horsepower this maximum of 75 horsepower is doubtless at same revolution per minute at which the racing prepared motor developed 86 horsepower so the car should be geared 90/82 of 2.14 or 2⅓. Equipped with fenders, top and windshield, 75 horsepower may be able to drive it only 72 miles per hour, say, so it should be geared 2⅔. The touring car, being higher and having more weight as well—more wind and friction resistance—may be able to attain only 65 miles per hour, therefore its gear should be 3 to 1. Berlin may be found to be geared correctly at 3¼ being able to attain a maximum speed of only 58 miles per hour. Considering hills, suppose that touring car be driven up a hill of such steepness that with its weight and wind resistance—chiefly weight here—75 horsepower can maintain a maximum of only 40 miles per hour, then to get best performance the car should be driven up that hill on a 65/40 of 3 or 4.9 gear.

Now, manifestly according to the editorial argument of gearing cars low. It wouldn't have lower than a 4 to 1 gear—which would limit its speed to about 50 miles per hour on level—and that even would not be low enough to get the best results on this hill which should be 4.9 about a 5 percent grade. A second gear would have to be used anyway and where would be any gain in a low high gear?

GOSHEN'S SPEED TRAP

Moline, Ill.—Editor Motor Age—Recently I was returning from the east on a motor trip and was unfortunate enough to pass through Goshen, Ind., where they stung us for $12 for fast driving. We were not exceeding 15 miles per hour. Since my return I found a number of people who have run against this same fine, and am informed by the clerk in Haskell hotel there and local garagemen of Goshen that they get all the tourists. I thought Motor Age might wish to warn tourists through its columns.—XII.

To take up briefly another so-called advantage of a low gear. Slowing the maximum speed to keep from being arrested best prevents accidents. Nine times out of ten except when actually pacing a car, a policeman will judge the speed of a car—and which will determine in his mind whether or not he shall chase it—by the sound of its motor, and what is more noisy, may I ask, than a Chicago taxicab, cut-out open at night, going 15 miles per hour with a 6½ or 5 to 1 gear? They gear them that way to keep their drivers from racing. Another thing, ask some taxicab company which has failed if one of the reasons of its failure, notwithstanding 50-cent-a-mile fare, isn't rapid motor deterioration.

What I propose is this: Should it ever become necessary on account of a law which will prevent a car capable of more than 30 miles per hour being sold, to prevent any car from going faster than that. Why not give the poor driver motor enough to climb any hill and geared on high for maximum motor length of life and limit his speed by a government inspected and sealed governor which will be non-acting as long as he is driving under 30 miles per hour, but which will close his throttle should the car exceed 30 miles per hour? This will not prevent his using full throttle or maximum motor speed—on low gears for heavy roads or hills. I do not believe such a governor will have to be invented for I understand from a London publication that such a governor is in use on certain London taxicabs.

As to burring of gears when changing, both the wear and noise depend largely on the gear design and clutch design. There are many cars on the market today, whose gears change so noiselessly that an expert in the rear seat with his eyes closed can scarcely tell when the gear is being changed.

This is long, but I believe it covers an important point that should be considered at once by everyone—engineers and laymen alike, for the good of the industry. I should like to solicit opinions from engineers and others on this subject.—A. L. Sheridan.

MAGNETO NEEDS RECHARGING

Burlington, Ia.—Editor Motor Age—Kindly answer through the Readers' Clearing House the following question:

I have been driving a 1909 model T Ford when late last fall the magneto began to give trouble, seemingly getting weak, until finally the car would not run on it. I installed a storage battery and the car runs with it. What is the possible trouble and how may it be remedied? Does the magneto need recharging? If so, how can this be accomplished? There is a very distinguishable knock which occurs in the motor when climbing steep hills on high speed, but it runs smoothly on the more level road. What is the cause of this and what effect will it have on the motor if it is allowed to continue?—Chas. O. Lesher.

Judging from the fact that the magneto has been getting weaker gradually it would seem that your ignition trouble is due to loss of magnetism in the magnets. These can be recharged and the magneto will then give no trouble, but it requires an expert. Motor Age would advise that you send the magneto to the factory for recharging, when it also can be thoroughly overhauled.

The knock may be due to having the ignition too far advanced when the motor slows down under a hard pull. But if retarding the spark when the motor is laboring does not stop the knock there is probably a loose connecting rod or piston pin. Any knock, no matter what the cause, should be attended to at once, as it is a sure sign of wear and the wear gets worse as the knock continues.

CLEAN OUT THE CARBON

St. Louis, Mo.—Editor Motor Age—Please answer the following questions pertaining to an Overland model 51:

1—What would have a tendency to cause the cylinder nearest the radiator to become more foul with carbon than the other three?

2—I use a 6-90 Great Western storage battery for lights and horn. In case my batteries run out, how could I use my battery for a spark to start my engine until I could throw same onto the magneto without doing harm to the ignition system?

3—Is is practical to use grease cups on the end of bolts at springs? I have oil cups and the oil runs down in the leaves of the springs and catches unnecessary dirt and dust.

4—Is it injurious to the engine to run it under the following conditions? The motor runs all right on all speeds, also on high on a hill if it is not too long, but should the hill be long and I lose my momentum gradually and start to feed more gasoline there will be a metallic pounding which is slightly lessened by retarding the spark, but still can be plainly heard. The engine shows plenty of power at all times excepting under the last condition. If gas is fed too rapidly without retarding the spark, there also is a slight pounding. Would a loose connecting rod slow up the motor; would carbon, or what?—J. J. Ross.

1—The cylinder that carbonizes probably is getting more oil than the others.

2—Take the lead wires from the dry battery and run them to the terminals of the storage battery. You can then start on the storage battery and also use it for lights and horn as well. If the connections to either the lights or the horn are grounded anywhere it will be necessary to disconnect the grounded side. A ground will show by the lights refusing to burn while the battery is being used for ignition or there will be no spark while the lights are on.

3—Yes, but you may have to use a softer grease in cold weather.

4—Too much carbon would decrease the power of your motor and cause it to slow on the hills and also would cause a knock due to preignition when the particles of carbon become incandescent as the motor heated up on a hill. The removal of the carbon probably will do away with the trouble. If there is still a knock, look for loose connecting rod bearing or piston pin.

SLIPPING CLUTCH EXPERIENCE

Clinton, Ia.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions:

1—What is the best treatment to prevent a leather-faced cone clutch from slipping? I have used neatsfoot oil, also fullers earth. Both help some, but for only a short time, and after making a run of 30 or 40 miles it slips as bad as ever. Would pulverized resin be as good or better? The leather seems to be in good shape.

2—My engine fires 1-2-3-4. In testing out to find which spark plug was not firing regularly I first started the engine and disconnected all but No. 1 spark plug. This cylinder would fire about twice every second. Cylinder No. 2 and No. 3, each running alone would fire just as often as No. 1 cylinder, but No. 4 cylinder would fire just half as often as cylinders No. 1, 2 and 3. I can't understand why cylinder No. 4 would not fire just as often as cylinders No. 1, 2 and 3 under the same conditions with spark and throttle in the same position. I am using the Atwater Kent Unisparker and G. & A. carbureter. I changed spark plugs in cylinder No. 4, but with no better results. When driving slowly on medium speed one cylinder misses more or less, but when driving from 10 to 30 miles it works much better, but still misses a little. All wires and connections seem to be in good shape.—J. R. Calhan.

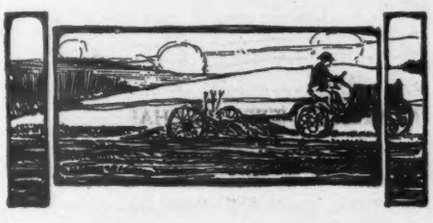
1—You should not use neatsfoot oil on a slipping clutch. The neatsfoot oil is only to be applied when the clutch takes hold too harshly. Fuller's earth is not to be recommended for use in a clutch. When a clutch slips it is due either to a superfluous amount of oil on the leather or to misalignment of the clutch due most probably to wear in the clutch spindle bearing. It would be advisable to wash off the leather of your clutch with gasoline and see that all of the fuller's earth is thoroughly cleaned out, then try it again.

If it still slips, look for lost motion in the clutch spindle bearing. This may be done by disengaging the clutch, and while held in a disengaged condition try to work it up and down, or rock it. If any lost motion is present it can be felt, and perhaps also heard. Should there be lost motion in the clutch bearing it will be necessary to renew the bushing. This, however, is not the most probable cause of your trouble, unless you also are experiencing some difficulty in shifting gears.

A case similar to yours was recently brought to the attention of a local repairman. A Pierce-Arrow car of about 1905 vintage was brought in with the complaint that the clutch had been slipping and that fuller's earth and resin, and even sand, had been used in an effort to eliminate the trouble. An examination of the clutch showed that the adjusting nuts on the clutch operating mechanism were out of adjustment and prevented the clutch from going in sufficiently far to hold tightly. Another similar case was that of a car on which the clutch operating pedal would strike the end of the slot in the footboard, thus preventing the clutch from going in as far as it should. Still another case like yours was cured by simply increasing the tension of the spring by means of the adjusting nut provided for that purpose.

2—Your trouble most probably is due to an air leak in the intake manifold, or at one of the connections between the carbureter and the intake valve chamber. To learn if this is the cause of your trouble, start your motor and let it run at the speed at which it misses most, then hold a cloth saturated with gasoline around the various connections, so that in case there should be a leak and air is being drawn in, when the hole is covered by the saturated cloth gasoline vapor instead of air will be drawn in and the missing will cease.

If your motor is a valve-in-the-head type it is possible that a gasket between the valve cage and the valve chamber has been burnt out and is admitting air. Or, should the cage not be seating properly, you might locate the trouble by pouring a little gasoline around the seats while the engine is running and missing. An air leak generally causes a motor to miss intermittently, or irregularly, and this fact would tend to indicate that the trouble was due to faulty ignition. It would be advisable, therefore, to again examine all the connections between the distributer and the spark plugs, also between the circuit breaker and distributer, and both the circuit breaker and distributing mechanisms themselves. It also would be well to see that the points of the spark plug in No. 4 cylinder are separated the same distance as those of the other plugs.



SOME REPAIRMEN'S QUALIFICATIONS

Quincy, Ill.—Editor Motor Age—In Motor Age, issue August 24, I noticed a query from Tapulka, Okla., as to how to become a motor car repairman and mechanic. Would it be possible to become an efficient one after several months washing and shining in a garage and a 6 or 8 weeks course in a motor car school?

To my mind, it would be impossible in so short a time to acquire sufficient knowledge to hold down a job of any consequence, especially if a man were not a mechanic to begin with. I am a machinist of 20 years' experience and have been for the past 10 years employed in the capacity of trouble hunter, and am in my present position 8 years. During the past 4 years have owned several different second-hand cars and do all my own repairing. Have been a subscriber to Motor Age for the past 3 years and try to take advantage of everything found in its valuable columns; have also read a number of text books on the subject. I thought of taking up motor car repair work but hesitated to recommend myself as such, and after answering several ads in the classified columns in Motor Age, stating my experience as a mechanic, telling them I had repaired by own cars for years and had been studying the mechanical and electrical problems, all the while reading the text books and periodicals that came my way, no one seemed willing to trust me with a position, replying that they did not want beginners. One suggested that all I needed was experience and I might develop into a first-class repairman. Is it possible that what I lacked was a wash and shine, and a course in a motor 'car school?—Machinist.

NO REMEDY FOR HARDENED TIRES

Eau Claire, Wis.—Editor Motor Age—Would Motor Age kindly inform me if there is some preparation made to soften rubber tires that have become hard? I have two casings that have stood on the shelf for a long time and consequently they are too stiff to force over the rim.—Subscriber.

There is nothing that will soften the tires that will not destroy them. The hardening of the tires is the natural deterioration due to age and the effects of light. The sulphur used in curing the tires becomes crystalized through the action of light and air and the tires cannot be restored to their former pliable state.

The National 40—Series S

General Construction Same As At Present—Refinement in Many Places—Greater Accuracy of Manufacture

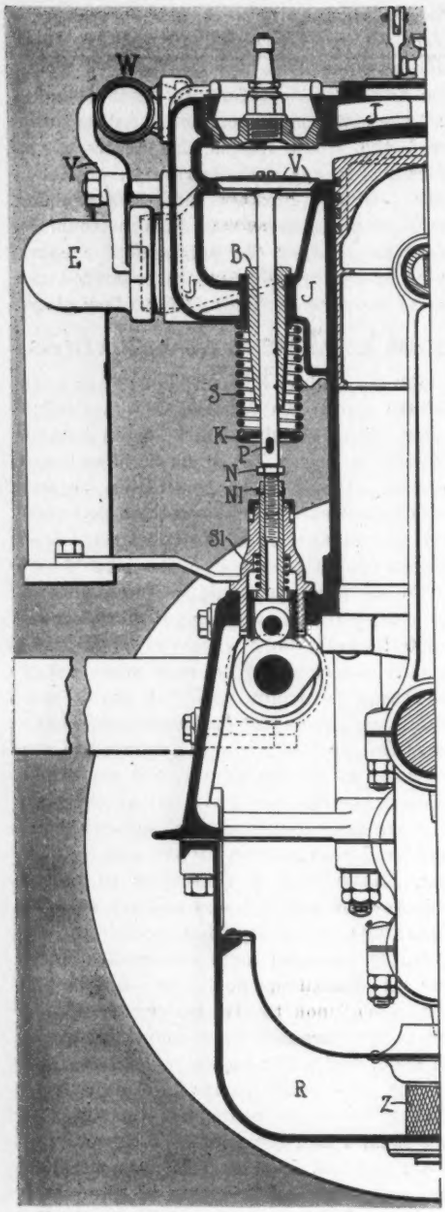


FIG. 1—NATIONAL VALVE DETAILS

SINCE the national stock chassis races held 10 days ago on the Elgin circuit, the most talked of stock car in America has been the National 40 which carried off the two big victories of the 2 days of racing, winning on Friday the Illinois trophy races for cars under 450 cubic inches' piston displacement, and winning on the following day the Elgin national trophy for stock cars under 600 cubic inches' piston displacement. Motor Age readers are all interested in stock cars and stock car performances, and the car described in these pages is identical with that which won the double victory, excepting in those few details in which the American Automobile Association allows an option when a stock car is entered in races. The leading of these options are: More rake to steering column, remove some of the piston rings, turn down the pistons slightly to give more clearance for the continuous high speed, use lighter rear springs, use optional rims, fit any shock absorber equipment, brace the steering column, fit larger gasoline tank, fit extra oil tank to supply the motor—these last two changes being to enable the car to run for a hundred or more miles without having to stop for fuel.

Little Change for 1912

To those already familiar with the National 40 during the present season, it will suffice to say that it is little changed for the coming season. This chassis has been constantly tested out in road, speedway and track races for many months, and Engineer Wahl has found little to change for the coming season. The majority of these changes are refinements in manufacturing operations, an example being greater accuracy in the manufacture and mounting of the timing gears so as to reduce noise.

The present chassis is designated as National 40 series S, and this series is made up of a variety of body styles, each being designated as a member as follows:

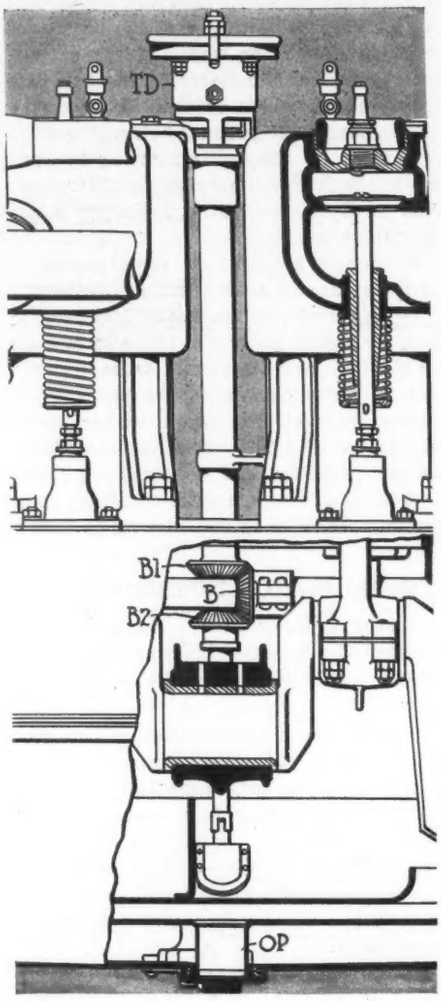


FIG. 2—OILER AND DISTRIBUTOR DRIVE

Name	Body type	Tires
S1 —	Roadster	36 by 4 or 34 by 4.5
S2 —	4-Door Tour	36 by 4
S3 —	4-Door Toy	36 by 4
S4 —	4-Door 7-pass	37 by 4.5
S5 —	Open Tour	36 by 4
S6 —	.....	.....
S7 —	Torpedo	.....
SX —	Special Body	.....
SX1—	Special roadster type	.....
SX2—	Special Touring car type	.....

Motor, 5 by 5 11/16: wheelbase, 124" over all.

This scheme of nomenclature is used to give a complete analysis of the different body types fitted. The nomenclature SXI means a special type of body with some improvements not found in the regular roadster type. It might be a change made in the middle of the season, which was incorporated at that time with the object that the company has in view of getting away from the annual model, so that as long as the present motor with its chassis components is used it will sail under the name of Series S.

According to S. A. E. formula, the horsepower is 40, hence the name National 40. A 5-inch bore gives this figure. The stroke is 5 11-16 inches, almost .75 inch more than the bore. This is a stroke-bore ratio of

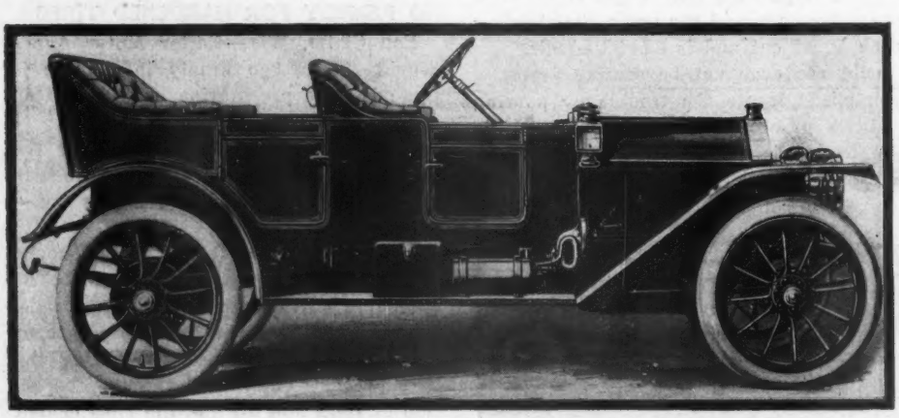


FIG. 3—GENERAL LINES OF NATIONAL 40 BODY FOR 1912

1.13, or, in a word, the stroke is practically one-eighth in excess of the bore. It would be an error to call this a long-stroke motor—it has, however, a leaning in that direction. In the special National 50, special racing chassis described in these pages some weeks ago there was an example of what might justly be called a long-stroke motor, the measurements being: Bore, 5 inches; strike, 7.5 inches. The stroke being one-half in excess of the bore.

Fig. 5 discloses the leading features of the motor. It is a T-head, twin-casting type with the intake valves on the right and the exhausts opposite. The crankcase is a two-part aluminum casting without integral arms to support it direct on the side frame members. The front end is supported on two macadamite brackets bolted direct to the upper part of the case. This metal is used because the engineer claims 50 per cent higher tensile strength than found in aluminum, and it also has the advantage of being capable of hardening. The rear motor support is a steel tube of rectangular cross section, attached direct by two vertical bolts to the crankcase and resting in pressed steel brackets on the frame members. This gives a four-point support, which has always been used by the company. Using detachable motor supporting arms of metal less bulky than aluminum, strength for strength, leaves more room for grouping the motor appurtenances, such as carbureter, water pump, magneto, oil filler, oil gauge, etc.

Waterjacketing Details

In designing the cylinder casting special precaution has been given to the waterjacketing details, which can be seen in the sectional illustrations Figs. 1, 2 and 4.

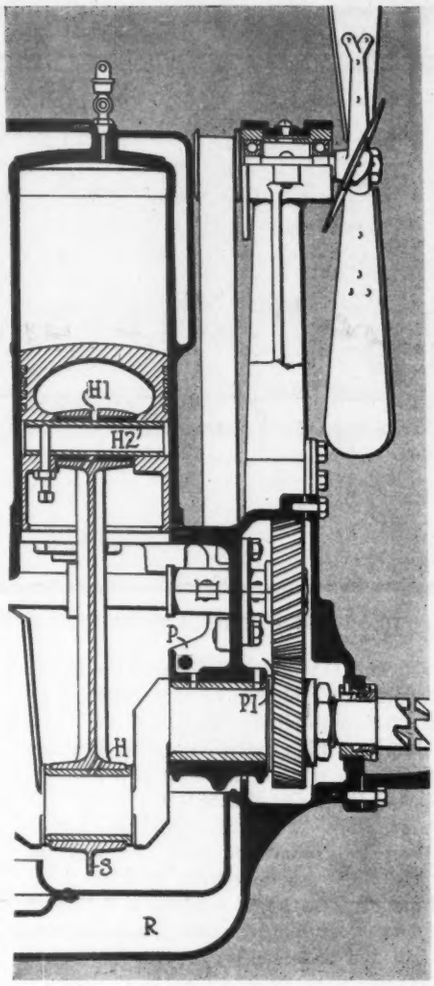


FIG. 4—THE CONNECTING ROD OILING SYSTEM. S, DIPPER; H, OIL RUN TO CONNECTING ROD BEARING; H1 AND H2, WRIST PIN OILERS. ILLUSTRATION ALSO SHOWS HOW COMBUSTION SPACE AND CYLINDER HEAD ARE WATERJACKETED

Fig. 1 shows the intake valve chamber with the valve V. The entire chamber is jacketed by water spaces J, which extend even around the valve cap carrying the spark plug, and are continued over the cylinder head. Fig. 2 shows a similar condition so far as the exhaust valve is concerned, and in Fig. 4, with the piston at its lowest point, the jacket spaces tell how the entire gas displacement volume of the motor is water surrounded. The water system is unconventional in that the intake water pipe, Fig. 5, from the pump enters the jackets above the exhaust manifold instead of beneath it, and the water return pipe to the radiator is in a similar position at the opposite side. Partitions in the jackets are needed to cause the water to traverse the complete jacket spaces. This system has been used for years.

The National motor has used large-diameter valves for two seasons. This is one reason for its high speed and power. A large valve offers a good entrance for the inrushing gases as well as an open door for quick exhaust. Fig. 1 shows the valve details: The stem of the valve V works in a long bushing B, fitted into the cast iron valve chamber; in the lower end of the stem is a slot P, which takes a short key to hold the washer K in place, the washer being the support for the base of the valve spring S. The valve lifter rod carries nut N and lock nut NI on its upper end to correct the valve opening, and on its lower end carries a roller kept constantly against the cam on the camshaft through the presence of a small spring, SI, whose force bears down upon the lifter. The exhaust valve details are exactly the same in every respect, the diameter of the valve being the same.

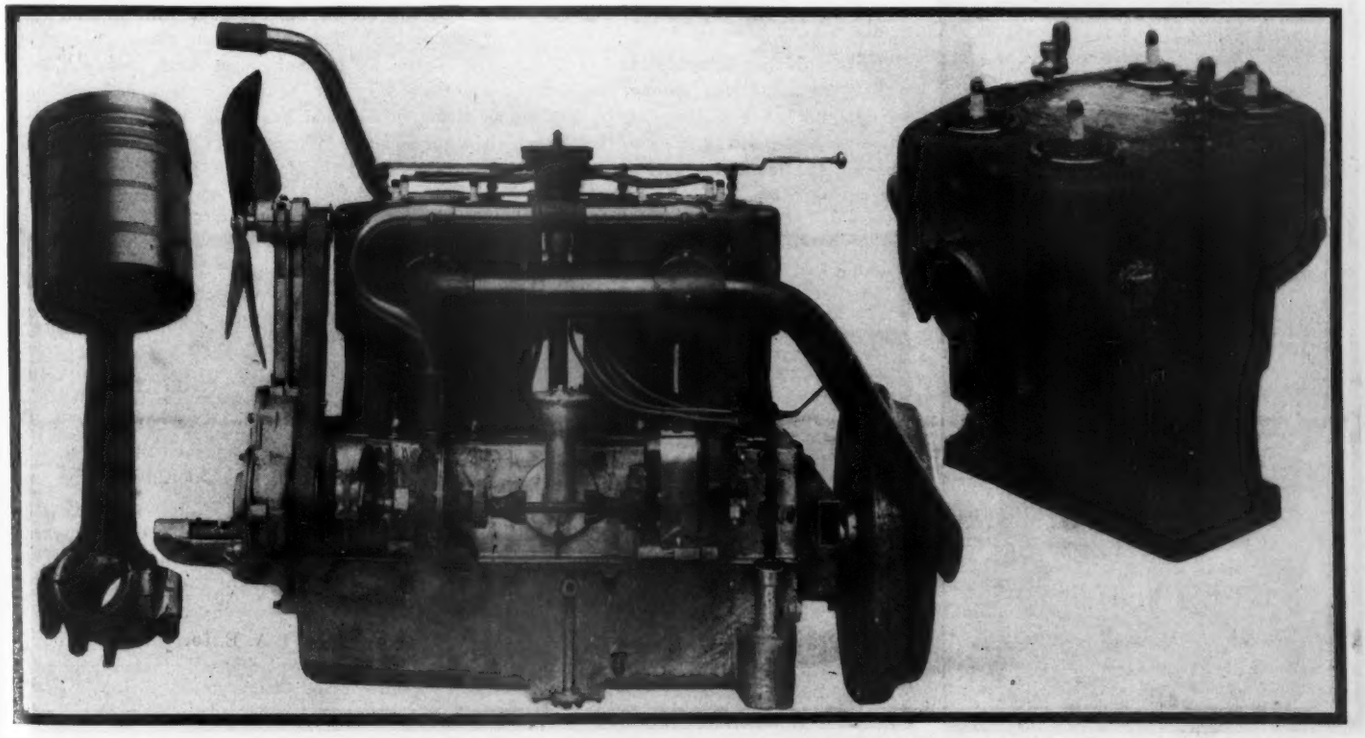


FIG. 5—NATIONAL 40 MOTOR, TWIN-CYLINDER CASTING AND PISTON UNIT

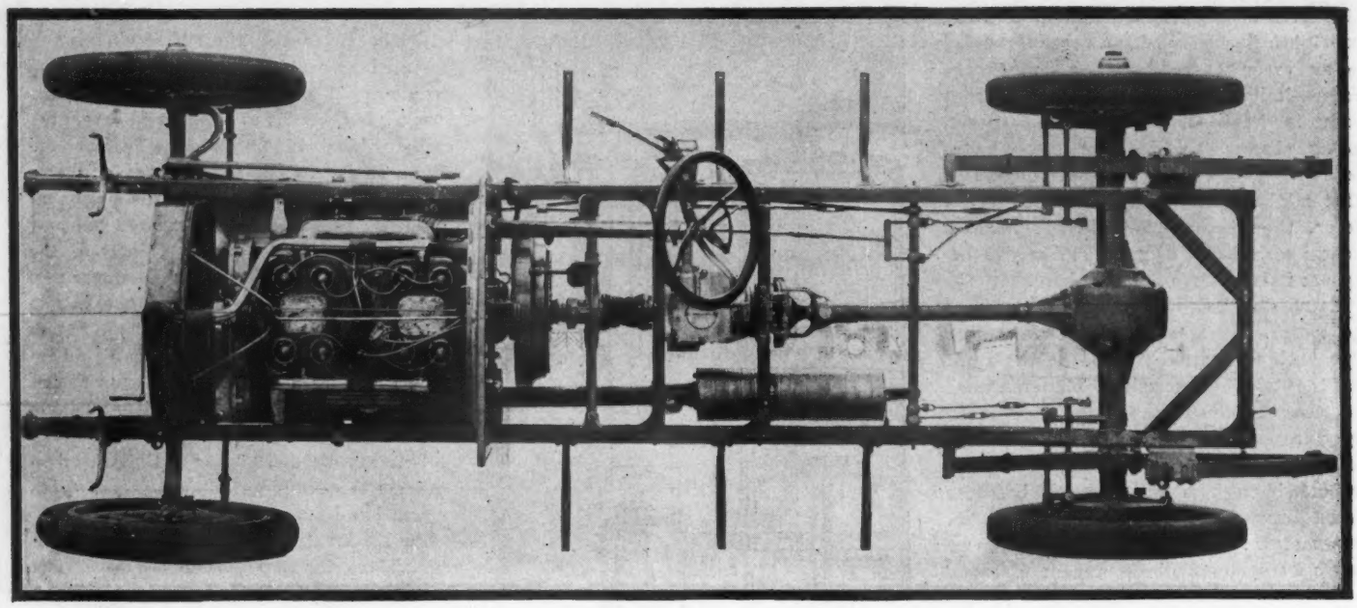


FIG. 6—NATIONAL CHASSIS SHOWING TORQUE TUBE UNIT WITH REAR AXLE

A simple method of securing both the water pipes and intake and exhaust manifolds by the same yoke on each side is illustrated in Fig. 1, where the yoke Y bears at its upper end against the water pipe W and its lower arm secures the intake pipe E. The same is true on the opposite side for the exhaust manifold and the intake water pipe, shown in Fig. 4. Loosening two nuts will permit of the removal of the intake with the return water pipe; loosening two nuts will do the same with the exhaust and the water pipe.

Two Ignition Systems

Since the introduction of two ignition systems the National company has used them, and the ignition system now in use is a gradual evolution of that installed on its first four-cylinder gasoline car. One system is a high-tension magneto ignition system; the other is made up of a battery, coil and timer-distributor TD, Fig. 2. One set of plugs is located over the intake valves, the other set over the exhaust valves. A magneto option is allowed on all models. In the SI roadster a Splitdorf is regular equipment with the Bosch optional, and on all other models the Bosch is regular with Splitdorf optional. Fig. 2 shows how the drive for the timer-distributor and oil pump is accomplished. On the camshaft is a bevel pinion B, that drives a bevel B1 on the lower end of the timer-distributor shaft, and also drives a bevel B2 on the top end of the oil pump shaft.

Uses Circulating Lubrication

The National was among the first cars to adopt what has come to be known as the circulating oiling system, that in which the oil is circulated and recirculated to the motor parts, being passed through fine wire mesh between succeeding circulations. Fig. 4 shows the oil reservoir R in the crankcase base, with a false ceiling, above which ceiling a splash level is had into which the connecting rod scoops S dip. Fig. 2 illustrates the gear oil pump OP in the reservoir, and Fig. 1 the fine mesh screen Z through which the oil must pass before reaching the oil pump. A desired oil level is maintained by the system of overflow pipes. The lower end of each connecting rod bearing, Fig. 4, has a diagonal slot H to lead the splashed oil into the bearing. The upper end of the connecting rod has a similar slot H1 to oil the wrist pin H2, and this pin, being hollow and of less length than the piston diameter, affords an opportunity for some of the oil on the cylinder wall to find its way in. The pin is anchored into the piston by the set screw with lock nut, so that only the bearing in the end of the connecting rod has to be lubricated. The three main bearings of the crankshaft are oiled from the splash. The oil is splashed into pockets P over the bearings, and

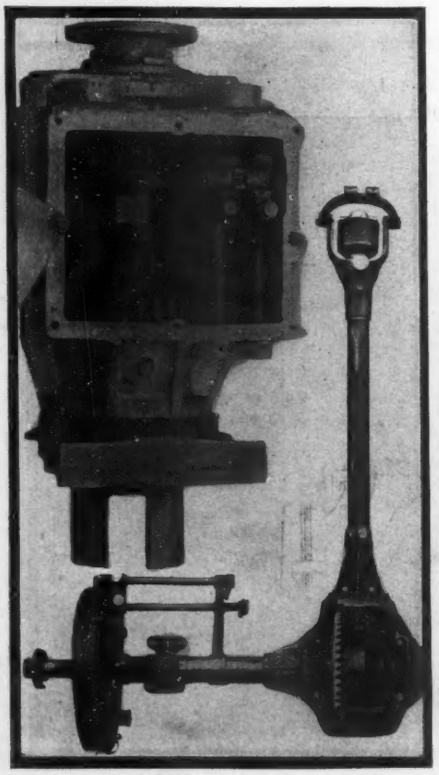


FIG. 7—GEARBOX AND REAR AXLE

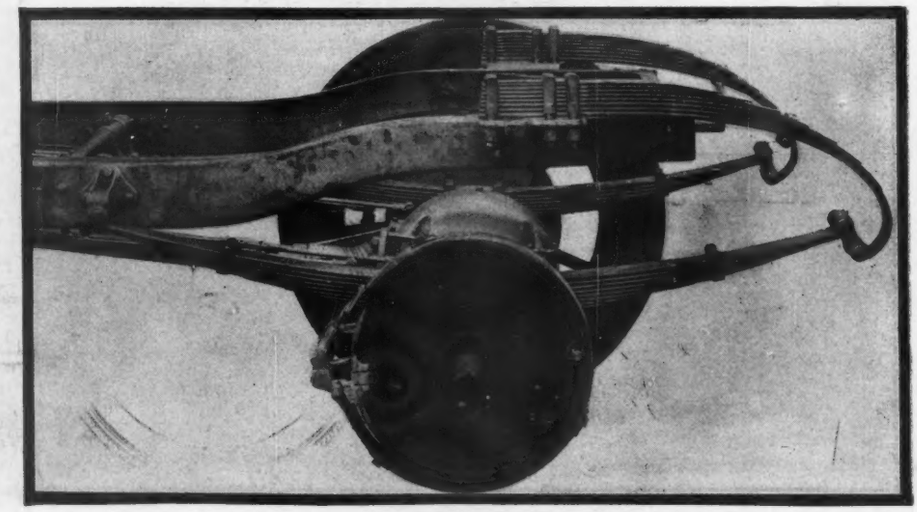


FIG. 8—THREE-QUARTER SPRING AND DOUBLE BRAKES

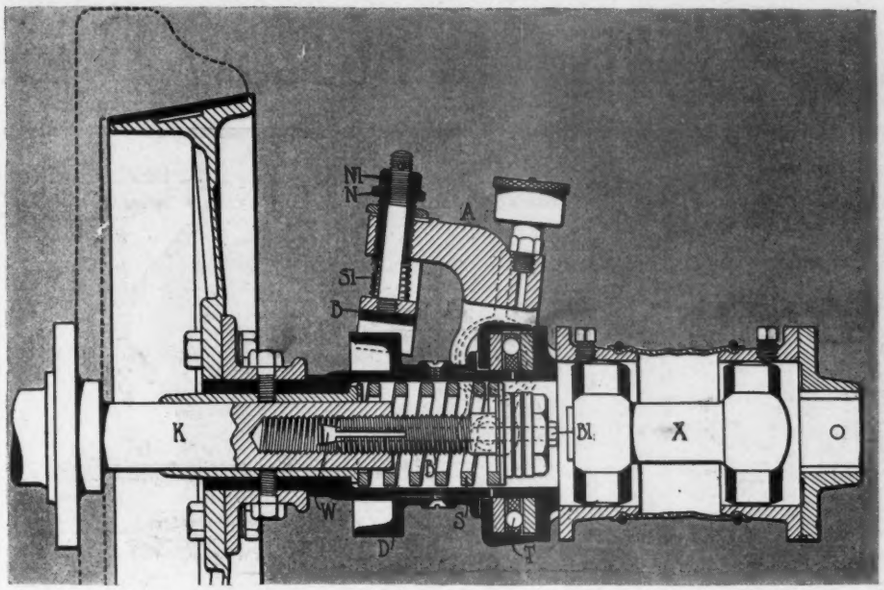


FIG. 9—CLUTCH WITH NEW CLUTCH BRAKE

slots in the floors of these pockets lead the oil directly into the bearing. The front crankshaft bearing has a space P1 in the timing gear case, with a lead from it into the front end of the bearing.

The Schebler model L carbureter is stock on the National cars. On the S1 roadster 2-inch size is used, on all others the size is 1.75 inches.

Fig. 6 gives a general conception of the transmission system, which begins with a leather-faced cone clutch in the flywheel, includes a three-speed selective gearset mounted approximately midway of the axles, a torque tube inclosing the propeller shaft and a floating axle.

Cone Clutch Continued

The clutch details appear in Fig. 9. The aluminum cone is made with a 10 degree face angle; the majority of cone clutches have a 13 degree angle. The smaller angle is used with the object of employing a lighter clutch spring and getting a clutch of easier engagement. Beneath the leather facing is a set of six flat springs to bulge the leather out and offer six high spots for first engagement and so obviate gripping or biting when the clutch is dropped in. To facilitate shifting gears a clutch brake B is employed, its mission being to stop the spinning of the cone and so prevent grinding to the gears when shifting. This brake is a sector B, supported on a hinged arm A. When the clutch is drawn back from the flywheel the sector B lowers upon the drum D, acting as a brake. A spring S1 prevents gripping. The brake adjustment is by nut N and lock nut N1 on the upper end of the stem carrying the sector B.

MOTOR CAR LITERATURE

The Garvin Machine Co.'s latest catalog of milling machinery, known as edition DA, is being mailed to the trade, and illustrates and describes its line of duplex milling machines, universal cutter and surface grinders, drilling and turning machines, etc.

The Bower Roller Bearing Co., Detroit, Mich., in its new catalog gives valuable information on its line of Bower bearings. These bearings are shown in different installations and a number of useful tables are shown.

A 6x8½-inch postal card system is being used by the Hyatt Roller Bearing Co., Detroit, to draw the attention of the public to its line of Hyatt roller bearings.

"Three Little Stories of Three Big Events and Three Winning Lubricants" is the rather lengthy title of a 6x3½-inch size booklet being mailed by the Acheson Graphite Co., Niagara Falls, N. Y., dealing with its lubricants as used by contestants in three racing events.

The Ideal Motor Car Co., Indianapolis, Ind., manufacturer of the Stutz car recently placed on the market, has issued a catalog describing and illustrating in a conventional manner this new car, which they have christened "The Car That Made Good in a Day."

The Niles-Bement-Pond Co., New York, has issued a large-sized catalog describing the characteristic features of its line of engine and gun lathes.

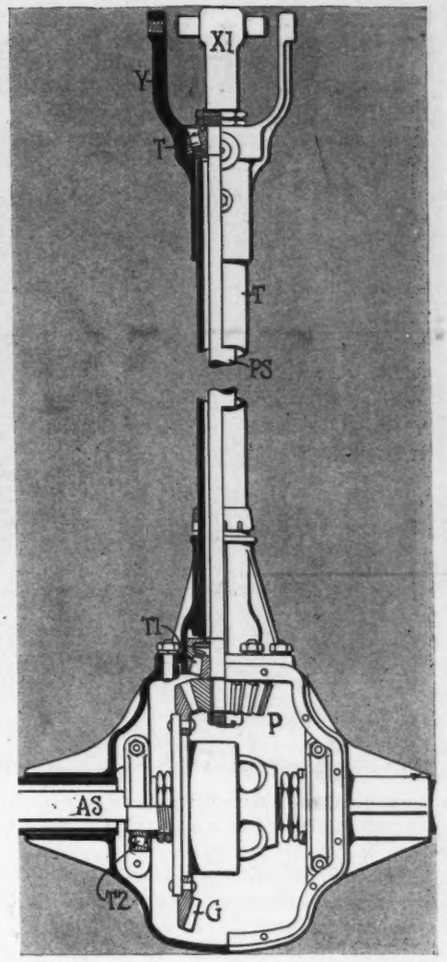


FIG. 10—DETAILS OF DRIVE SYSTEM

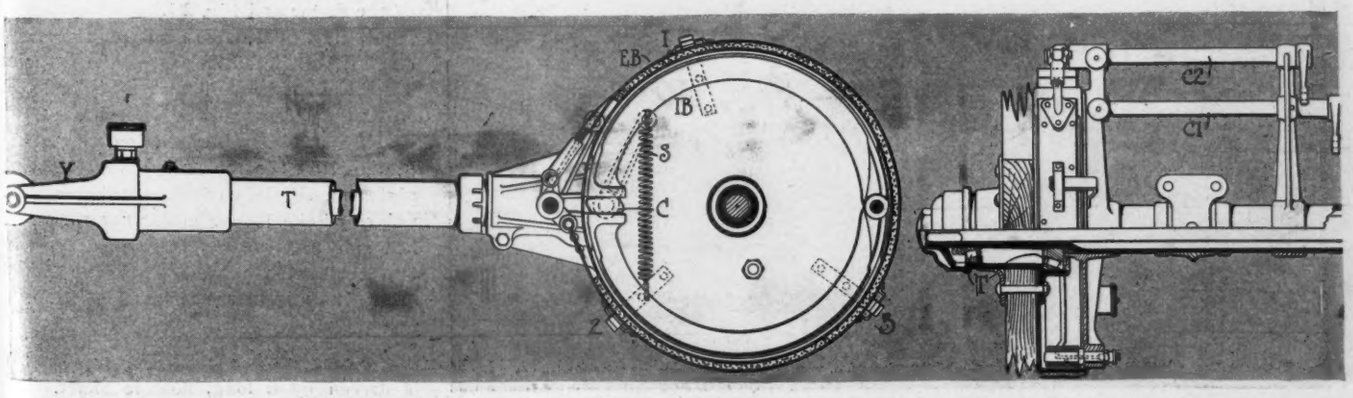


FIG 11—DESIGN AND MEANS OF OPERATING THE TWO SETS OF NATIONAL BRAKES

R.C.H. Runabout New Car of Low Price

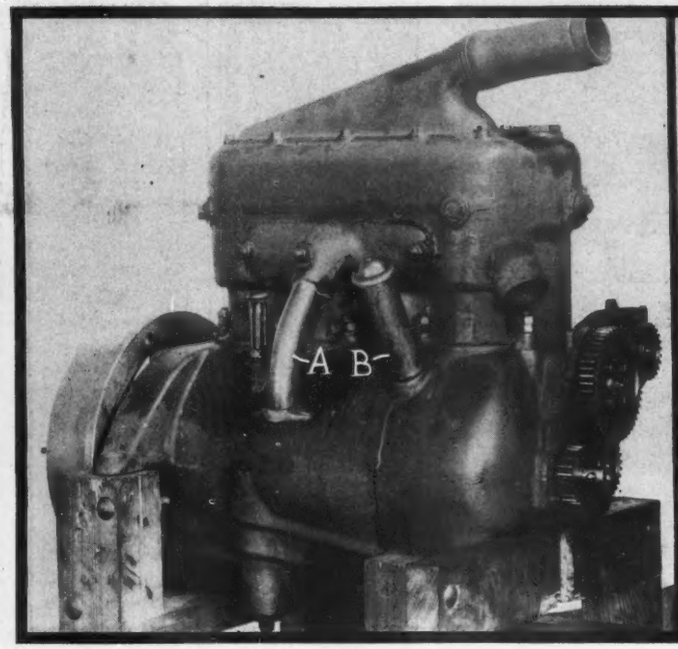


FIG. 1—RIGHT SIDE OF R. C. H. MOTOR SHOWING INTAKE A FROM CARBURETER IN CRANKCASE COVER AND OIL FILLER PIPE B

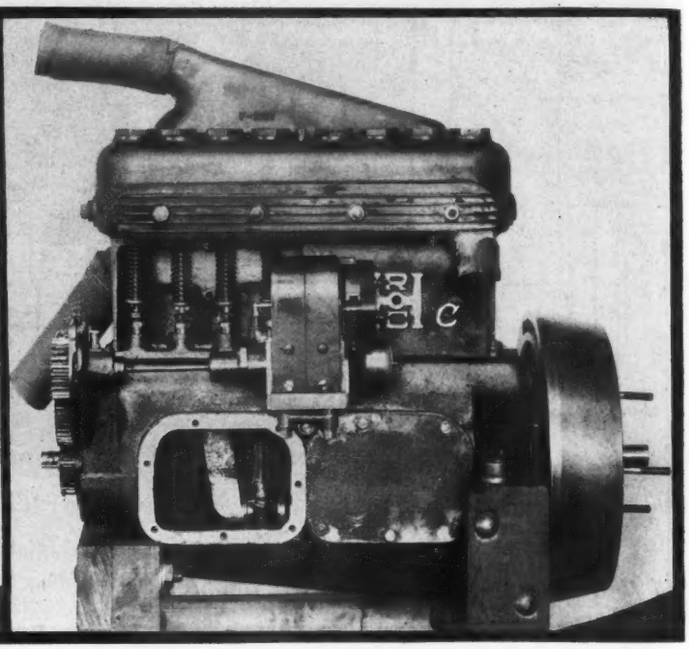


FIG 2—LEFT SIDE OF R. C. H. MOTOR SHOWING PLATE C COVERING VALUE LIFTERS AND CRANKCASE COVER PLATES

Hupp Corporation Enters Gasoline Field with Torpedo Runabout Having Many Novel Features—Left-Hand Steer with Center Gear-Shift Lever—Fully Inclosed Carbureter

HERETOFORE the Hupp Corporation has confined its producing efforts to the manufacture of the Hupp-Yeats electric, but now announces the details of a low-priced gasoline car, the first model of which has been placed on exhibition. The car is to be known as the R. C. H.—the initials of R. C. Hupp, the president of the corporation. The manufacturing schedule calls for the output of 500 cars of the runabout type by the first of the year, and it is probable that other models will be produced as the business develops.

In many respects the R. C. H. is unique among cars of its type. Some of the features are: the location of the driver's seat at the left, with left-hand steer, and the placing of the single control lever, which operates the gear shift, in the center; emergency brake lever, both external and internal brakes being operated by pedals; comparatively long-stroke motor, the stroke being more than 1½ times the bore of the cylinders; three-point suspension of the motor, with the single point at the front; location of the gearset on the rear axle; complete housing of the valve operating mechanism; valves on the left side, with the carbureter on the right side and the intake manifold passing along the water jackets between the cylinders, and both carbureter and old reservoir inclosed in the crankcase; concealed braking mechanism, with novel construction of equalizers.

FIG. 3—R. C. H. MODEL F TORPEDO RUNABOUT

R. C. H. Motor

The first model, known as model F, with a factory rating of 22 horsepower, is a torpedo runabout. The motor of the car has its four cylinders cast en bloc. The cylinders have a bore of 3¼ inches and a stroke of 5 inches, giving the motor a very long stroke and an S. A. E. rating of 16.9 horsepower. Fig. 1 shows the right-hand side of the motor and Fig. 2 illustrates the left-hand side. The removal of the single casting bolted to the top of the cylinders opens the heads of all four cylinders. The en bloc casting permits the use of a two-bearing crankshaft, admission to which is provided by the removal of the two large plates on the left of the crankcase. The valves of the L-type motor are all on the left side and the tappets are inclosed by two removable plates, one of which is shown in place at the right of Fig. 2.

Mounting of Magneto

The magneto is mounted on the left and is driven by a long, flexible shaft. The carbureter is located within the crankcase

cover on the right side of the motor, and the intake pipe shown at A, Fig. 1, connects to a cast manifold whose branches pass between the cylinders to the admission valves on the other side. The heat from the cylinders helps to vaporize the gas and assures a uniform mixture. Also within the crankcase cover is the oil reservoir, the filler pipe for which is shown at B, Fig. 1. The lubrication system is of the constant level, splash type. The motor is supported at three points, with the single point of support at the front, an unusual arrangement in three-point support. The motor is cooled by the thermosyphon system of water circulation.

Cone Clutch Used

The cone clutch, C, Fig. 5, is of large diameter with self-contained thrust bearing and grease-tight universal joint of hardened steel. A shaft with a universal joint at either end connects the clutch with the forward end of the torsion tube. This double universal joint permits the engine to be all of 1 inch out of line with the propeller shaft without affecting the operation of the car.

Power is transmitted to the gearset on the rear axle by a propeller shaft. A fully inclosed ball packed in grease accommodates the forward end of the shaft, taking the torque and drive of the car. A grease plug allows easy access when fresh lubrication is needed. The torsion tube inclosing the shaft is held at the rear end in the gearset housing. The gearset, G, Fig. 5, is of the three-speed selective type mounted on roller bearings. The gears are made of chrome-vanadium oil-treated steel, hardened to prevent wear, and the jackshaft and pinion shaft are of the same material. Upon the latter and held in place by four integral keys are mounted the sliding gears.

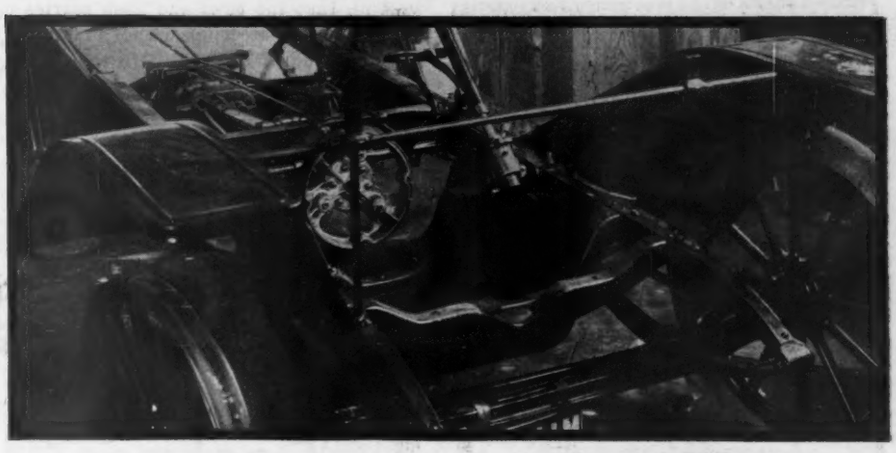


FIG. 4—FORWARD FRAME CONSTRUCTION OF R. C. H. MODEL F, SHOWING DROPPED CROSSMEMBERS AND UNIQUE SUPPORT FOR LAMPS

The transmission case is split vertically through the center so that the gearset may be removed without the necessity of taking out the rear axle, by simply unbolting the case. The rear half is integral with the rear axle housing. The housing of the rear axle is not split in the middle, but is constructed in one piece, with a cap at the rear, permitting the removal of the differential and rear axle shafts. Large sized Hyatt bearings running upon hardened and ground steel linings support the differential at either side, the thrust being taken by two ball bearings. The pinion and the bevel gear may be adjusted in any direction so that quiet operation is obtained.

The steering gear is of the irreversible worm gear type and is mounted solidly on the left hand side of the frame, with a 16-inch steering wheel. The post is inclosed in a stationary black enameled tube. A right-hand pedal operates the external brake; e left-hand pedal first releases the clutch and then applies the internal brake. A slight forward movement of this pedal locks it in any desired position. When the car is alongside the curb this brake is then locked. The same motion releases the clutch and makes it impossible for one to be injured while cranking the car, by reason of the gears being left enmesh, or to start the car and run with the brakes set.

The Brake Mechanism

Two brake rods run along the center of the car to their respective equalizer bars, E, Fig. 5, extending from the rear end of the transmission to levers controlling the brakes. This gives a concealed braking

FIG. 5—BRAKE AND TRANSMISSION SYSTEM OF R. C. H. E, BRAKE EQUALIZER; G, GEARSET ON REAR AXLE; C, CLUTCH; CENTRAL CHANGE-SPEED LEVER AND LEFT HAND STEER

FIG. 6—PARTS OF R.C.H. STEERING GEAR. W, WORM; C, CASE; G, WORM GEAR; H, ARM; B, BASE PLATE

arrangement and renders impossible the application of the brake to one wheel more than another, thus eliminating unequal tire wear. The brakes are 10 inches in diameter by 1½ face, lined with raybestos.

An accelerator pedal controlled by the right foot regulates the carbureter, while an adjustment just above this pedal determines the low speed when the foot is removed.

The front springs are 1½ inches wide by 33 inches long, semi-elliptic and nearly flat. The rear springs, 1¾ inches wide and 37 inches long, of the full elliptic type, are tilted at the top toward the rear and hang under the axle. These features make for easy riding, which is further insured by the fact that the passenger load has been located well forward of the rear axle, while the springs are mounted upon swivel seats to allow them fullest freedom under all conditions.

The frame is of channel steel of comparatively large section, and there is a heavy central cross member at the rear end of the clutch shaft, as well as for the sub-frame for the motor support.

The wheelbase is 86 inches, with tires 30 by 3 inches in size. The equipment of the new car includes top, windshield, three oil lamps, two gas lamps, generator, horn, tool kit, etc.

KING TOURING RUNABOUT

One of the latest bodies on the King car is a torpedo roadster type with large inclosed riding space in the rear of the seat, the illustration showing the general details. The front portion of the car is much the same as the touring car except that the cowl and dash carries up nearer to the steering wheel and a racy type of windshield fitted. On this touring runabout the front fenders are horizontal above the front wheel, whereas on the touring car they point downwards to the front end of the frame. The chassis carrying this roadster is 115-inch wheelbase and fitted front and rear by 34-by-4-inch tires. It uses the regular monobloc King motor, bore 3 3-16, stroke 5⅛ inches. The car has a floating rear axle.

Motor Car Design

"THE Practical Design of Motor Cars" by James Gunn, lecturer on motor car engineering at the Glasgow and West of Scotland Technical college, is the outcome of the author's work in the classroom and testing laboratory. It is primarily intended for draftsmen and designers and as it embodies the results of a wide, practical experience the work should be of direct value in its field.

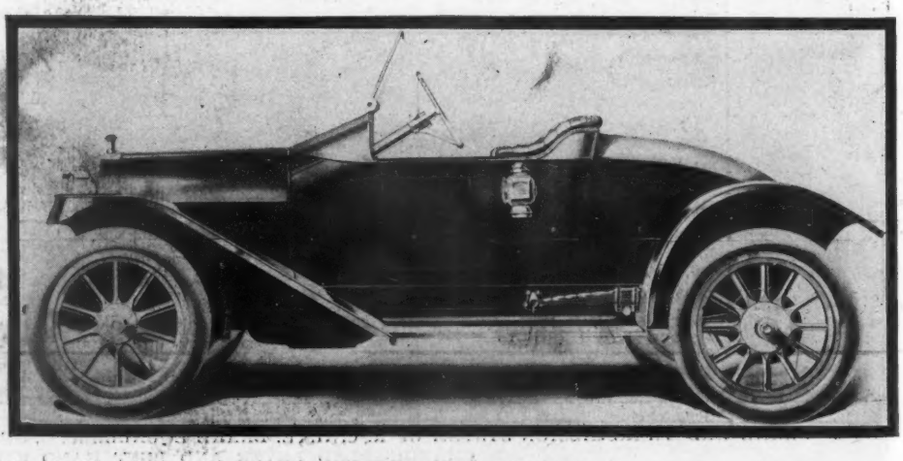
After a brief general description of the motor car engine each part of the mechanism is taken up in detail, and the types of the various parts as made by different manufacturers are compared and criticised. The advantages and disadvantages of different systems are noted and various constants, the results of experience, are given for the use of designers.

The electric car is granted only a paragraph in the introduction while the steam car is dismissed with the following interesting statement: "The steam vehicle, however, is not up to the present quite so reliable or efficient as its uses demand; yet it must be admitted that for vehicular propulsion, whether the load be heavy or light, steam is the best power which can be used, and no doubt, in the near future, when the deficiencies of the present system of raising and using high pressures and highly superheated steam have been removed, it will become the universal motive power for all types of vehicles."

In spite of the author's apparent belief in the ultimate superiority of steam, practically the whole of the 255 pages of the book are devoted to the design of gasoline motor cars, and it should be of value not alone to the designer and manufacturer. The simple and direct descriptions and the clear diagrams should render it of assistance to the non-technical man who is interested in the subject. Longmans, Green & Co., New York.

Practical Electricity

"Practical Applied Electricity" is the title of a new handbook on electricity by David Penn Noreton, associate professor of electrical engineering at Armour Institute of Technology. The book is intended primarily for those who wish to obtain a practical knowledge of the subject of electricity but are unable to take a complete course in electrical engineering. The text is based to a certain extent upon a series of lectures given by the author to evening classes on electrical engineering, and consequently gets at the fundamentals of the subject in the shortest methods consistent with a thorough understanding of them. The arrangement is not the one usually followed and to some it may not appear to be logical, but should be of assistance to the reader who has some particular problem to work out or point to look up. The book opens in the usual way with the discussion of electrical circuits and units, and elementary calculations. The theory of dynamos and motors then is taken up. The question of direct-current dynamos is given a separate chapter while electric lighting and wiring are likewise accorded a chapter apiece. Alternating current work is covered in a space of thirty-six pages and the book ends with a series of tables of logarithms, armature windings, and similar information of value in electrical calculations. A page devoted to the illustration of the more common symbols used for electrical apparatus should be of value in the reading of blue prints or tracing circuits. The illustrations and diagrams are particularly clear and the reading matter is interspersed with examples and problems that put the work in concrete form. Reilly & Britton Co.



KING TOURING RUNABOUT

Development Briefs

FIG. 1—CENTER STUDDED TIRE TREAD.

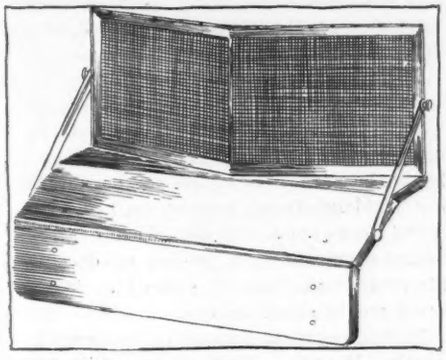


FIG. 2—FOLDING WIRE WINDSHIELD

Wire Mesh Windshield

MANUFACTURERS of windshields have paid little if any attention to designing them so that the minimum of head resistance is offered to the wind, but it is claimed that a flat surface like the ordinary windshield offers somewhat more resistance and therefore requires more power for propulsion than would a V-shaped surface with its apex toward the front. This V-shaped construction of the windshield is used in the product of the Rockford Folding Auto Windshield Co., of Rockford, Ill. These shields are made with an apex to the front, with the sides at an angle of from 25 to 45 degrees with the front of the car. In addition to the glass shields, a specialty is made of those in which the glass front is replaced by a screen of fine wire mesh, as shown in Fig. 2. The idea is that while being more durable than glass, the fine mesh breaks up the current of air so that there is merely a small amount of fresh air coming through it, and the fine mesh does not interfere with the vision. All of the shields can be folded up and stowed away when not in use.

An attachment with which these windshields may be equipped consists of a rack for clothing or packages by which the space under the front is utilized. The rack when not in use can be folded up with the windshield.

Drygas Tube

While there are a multitude of arrangements for assuring a minimum of water in the gasoline as it reaches the carbureter, few of them are intended to act on the seat of the trouble, the fuel in the tank. One device, however, is made to be inserted directly in the gasoline tank, where it is supposed to absorb all water that may be within the latter. This is called the drygas tube, and its construction and use is shown in Fig. 3. It is a perforated metal case, 3 inches long and 1 inch in diameter, into which there is compressed a substance that is claimed to have the peculiar property of attracting and absorbing water while immersed in other liquids without being in the least affected or saturated by such liquids.

It is said that the tube has the capacity to absorb and contain about 3 ounces of water, a greater quantity than would ordinarily accummulate in a fair-sized tank in several months. The directions for use say that the tube should be taken out about every 3 months and dried in a hot oven, when it is then as good as new for future use. The tube is manufactured by the Motor Supply Co., Waterbury, Conn.

Center-Studded Woodworth Tread

The Leather Tire Goods Co., of Niagara Falls, has just brought out a new Woodworth tread which it calls the center-studded tread. This tread has the latest quick adjusted fastening, which will be used on the Woodworth treads for 1912 and differs from the other Woodworth treads in being made of somewhat lighter leather and having the steel studs only on the center portion, which comes in contact with the road. This tread is designed especially for use in cities or on comparatively smooth roads where there is nothing to wear the sides of the tires. For use on trucks, taxicabs or other vehicles which will not be used in the ruts or rough roads of the country districts it is equal to the full-studded Woodworth treads.

Spring Ball Throttle Connection

In meeting the demand for a ball and socket connection suitable for use on the adjusting rods of a carbureter, the spark control, or for like connections where a free but secure joint is required, the Billings & Spencer Co., of Hartford, Conn., has brought out a device called the B. & S. spring ball throttle connection.

It is illustrated in Fig. 4 and is composed of a cylindrical case containing the socket in two sections, one section inclosing a spiral spring, which holds it in permanent tension against the ball. The other section is in the form of a threaded plug inserted in the end of the case and locked in position by a cotter pin. The ball end of the connection is thus secure, and at the same time given full play.

Hoosier Invents Automatic Motor

An automatic motor that is creating considerable attention is being perfected by A. C. Rutzen of Indianapolis, who has been identified with the motor car industry since 1900. The new motor furnishes power by means of a series of thirty-six steel springs, each 14 inches long. While part of the springs supply power, the remainder are rewinding. Rutzen says the motor he has perfected thus far supplies sufficient current for fourteen electric lights and that ultimately he believes he will be able to make an automatic spring motor that will furnish the motive power for a motor car. He says a 2½ horsepower motor may be placed in an 8-inch box and a 30 horsepower motor in a 24-inch box.

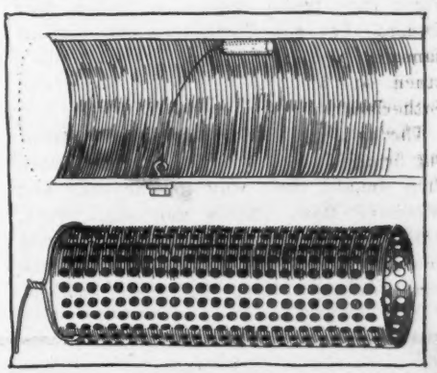


FIG. 3—THE DRYGAS TUBE

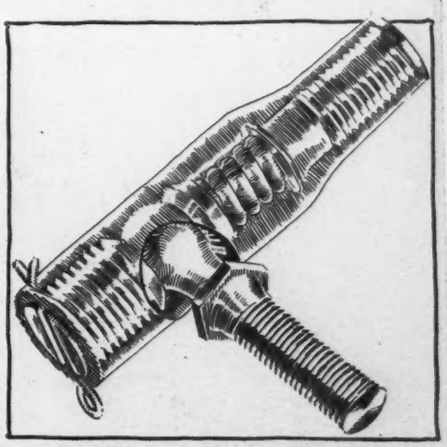


FIG. 4—SPRING BALL THROTTLE CONNECTION

Trucking Across a Continent

PACKARD TRUCK MAKING ITS WAY ACROSS THE DESERT

Packard Runs From New York to San Francisco, Establishing a Continuous Trip Record

FROM New York to San Francisco in a motor truck is the trip completed August 24 by E. L. Burnett, of Detroit, With him at the finish were W. T. Fishleigh and Arnold Hainer, the former joining the party at Omaha, Neb., and Hainer in Detroit. It is claimed it is the first time that a commercial motor vehicle ever has made the continuous trip and the one that did it is a 3-ton Packard.

The Packard was caravan-equipped, and except for the absence of horses or mules, presented much the appearance of a prairie schooner. Sand bags were carried for ballast, along with one barrel of gasoline and another of oil. The cargo was 3 tons, and the total weight over 13,000 pounds.

Although they struck much bad going in the middle west it was not until after leaving Omaha, that the real seriousness of the undertaking began to present itself. First they broke through a bridge near Dunlap, but got themselves out without damage, and arrived at Buffalo Bill's ranch on the trail between Cozad and Sutherland.

Through sand, over dangerously tottering bridges and tortuous buffalo wallows, they fought their way to Cheyenne and Medicine Bow. Rocks and sage brush, trails full of prairie dog holes, and ruts too narrow to take the wheels, were the roads leading to Dana, Hanna and Rawlins.

GETTING OUT OF A RUT

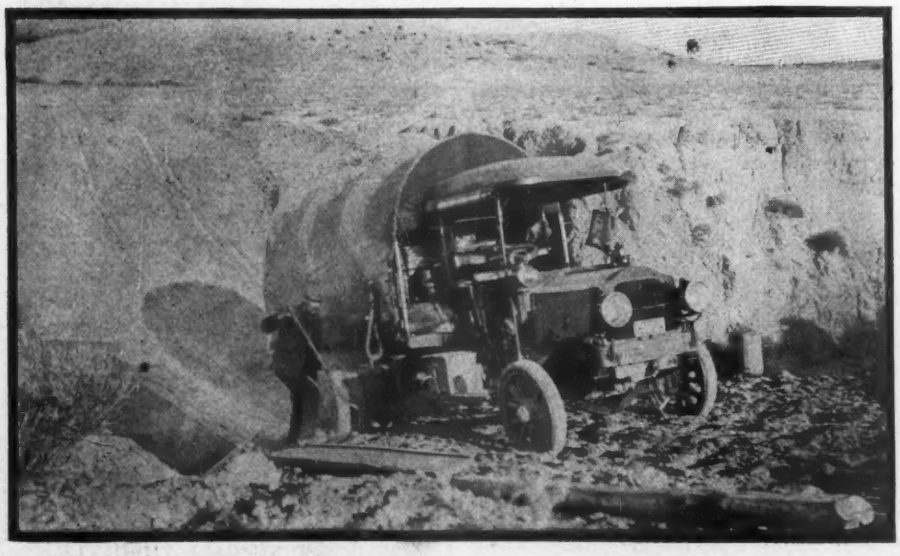
To Fort Steele there were steep, rocky hills, and more sage brush ruts. Just for diversion the crew took a few shots at rabbits, eagles, sage hens, badger and prairie dogs.

It was on the way to Wamsutter and just west of Rawlins that an accident occurred which came near ending the trip. A rear wheel crashed through a bridge and only prompt and strenuous efforts prevented the outfit from plunging into the canyon. It took 3 hours of hard work to get out.

Washouts 5 to 20 feet and sand a foot deep in long stretches, ruts of baked clay, which had to be dug away to get through, were some of the obstacles overcome on the way to Rock Springs. In one place was a sand pit on a turn. It was impossible to use skids, and tarpaulins, sand bags and even the cot mattresses were pressed into service. Near Evanston they dropped hub deep into a soft silt while attempting to cross a small stream and it was 2 hours before they got out.

The road from there to Salt Lake City, Utah, led them for a long stretch through a rocky canyon. It was dangerous travel but was made without mishap. For 2 hours the party was lost in the sagebrush, but Fishleigh found a horse trail and followed it on foot. It led them over an unbroken waste with gullies so deep in places that at times it seemed as if the truck would stand on end.

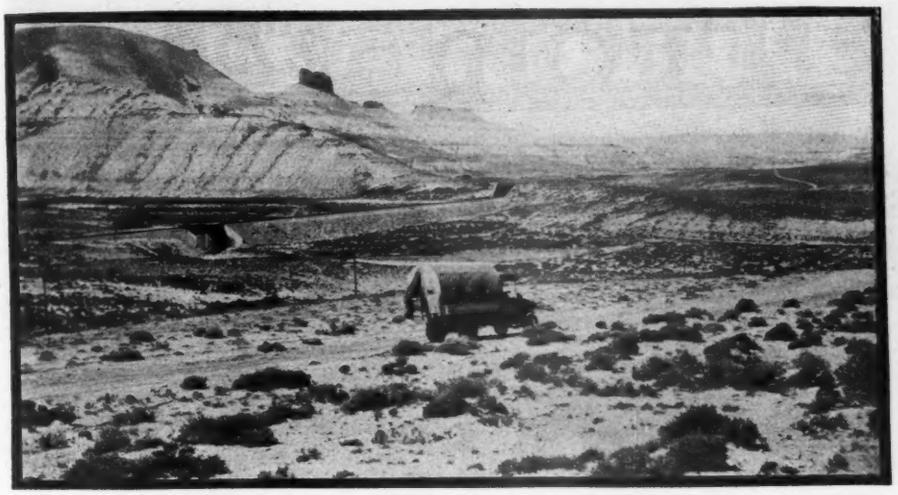
Things began to happen on the road to Austin, Nevada. First Hainer killed a huge rattlesnake that disputed the right of way. At Deeth hotel, the truck damaged a tree, and but for a friendly constable the party would have been held up by a westerner in true eastern style. At Elko, a horse got scared, ran away, and it took cash to pay the damages.



IT ALWAYS WASN'T EASY GOING IN THE WESTERN WILDS

NATIONAL ROADS THE BEST

Dr. F. L. Bartlett, chairman of the good roads committee of the chamber of commerce of Denver, has recently returned from a motor trip of 4,600 miles through the eastern United States and southern Canada. Though primarily on a pleasure tour, the party made careful study of road conditions and reports on returning that the natural dirt and sand roads of the west which have been carefully graded, surfaced and are maintained largely by the farmers are the best highways they found. The Omaha-Denver stretch was one on the best roads encountered on the whole tour. The Colorado end is the hard sand typical of the state and the Nebraska end, though dirt, is well kept up by the farmers who depend upon it.



SOME PLACES THE ROADS OUT WEST WERE GOOD

Manufacturers' Communications

TIRE NEEDS OF TRUCKS

NEW YORK—Editor Motor Age—Care of tires is one of the most important questions entering into economic motor truck operation. We hear a great deal about the needs and requirements of pneumatic tires, but a great many truck owners seem to entertain the idea that solid tires need no attention as long as they remain on the wheels and run. The man who holds these views will find his tire bills far in excess of what they should be. Solid tires constitute one of the most important details of motor truck equipment and besides, they cost money. For these reasons, if a truck owner expects to realize a satisfactory return on his investment, he should see to it that his tires are looked after in a business-like manner.

Perhaps the question of first importance in the care of solid tires is overloading. Observation of trucks in service discloses a general tendency on the part of drivers to overload them. It should be borne in mind that tires must sustain every ounce of weight above them and to overload them means their premature deterioration. A load always should be limited to the capacity the truck was designed to carry. This capacity has been figured out by the truck manufacturer and the tire equipment is in accordance with his specifications. Therefore, there can be no possible economy in overloading the truck and imposing unreasonable burden upon the tires.

Speeding is another common form of solid tire abuse. There is many a truck owner laboring under the weight of excessive tire bills, who could easily ascertain the cause if he would but station himself at some point away from his place of business and observe the actions of his driver, when he has passed out of sight of the boss. He would find his truck bumping over cobble stones at a rate far in excess of the speed at which it should be driven. The wear and tear on tires is much greater on a truck thus handled than on one sent along at a moderate pace. This is particularly true if the pavements are rough and the load a heavy one. When an operator overloads a truck and then in addition drives it recklessly the owner scarcely can expect satisfactory tire service.

Drivers also can protect their tires by exercising care in the use of brakes. Quick stops, caused by a sudden and violent application of the brakes, are hard on tires. The action is more than apt to tear the rubber from its base. And in this connection it may be noted that the most difficult problem confronting solid tire makers has been the devising of means to hold the tire together. It has been comparatively easy, through various processes of compounding, to produce a mileage-yielding tire, but it has not been so easy to maintain the unity of the tire until this service could be gotten out of it.

Another practice frequently resorted to, for reasons of apparent expediency, is to allow a truck to stand under full load over night, or perhaps longer. This imposes an unnecessary strain upon the tires and from the standpoint of tire economy it is far better to remove the load from the truck until such time as delivery is to be made.

Rounding corners at a high rate of speed is a mighty expensive way of demonstrating skillful driving. A driver shortens the life of his tires every time he does it. When a heavy truck is swung rapidly around a corner the strain on the tires is tremendous. They must not only sustain the weight of the load under such conditions, but must resist the swaying motion of the truck as well.

Street car tracks should be avoided whenever possible, and at crossing points, where there are frogs, additional care should be exercised in dodging them, as the frogs frequently are worn until their sharp edges cut a tire as effectively as though a knife were used.

It is important that every business man using motor trucks in his delivery system should keep a careful, systematic record of the work done by them and the expense of their operation. In this way, and in this way only, is he in position to know what each detail of his truck equipment is costing him. And if he finds that he is not getting the mileage out of his tires his business judgment tells him he should get, he may discover, upon investigation, that the men operating his trucks are more or less at fault.—F. F. Phillips, manager Solid Tire Department, United States Tire Co.

THE PACKARD CREW AND ONE OF THE DILEMMAS IT GOT INTO

From the

SAVANNAH Changes Racing Plans—The Savannah Automobile Club has decided to make the Tiedeman trophy and Savannah challenge cuy road races on November 27 open to class C cars instead of being stock as originally planned.

Farmers Ask for Higher Taxes—A number of Washington farmers in the vicinity of Raymond, Wash., have made an unusual request to the board of equalization. They have petitioned that bottom lands in that section be taxed $5 instead of $1 as they now appear on the rolls. This was in order that a greater fund for road-building might be available.

Register With A. A. A. for 1912—Registration of 1912 stock car models with the technical committee of the American Automobile Association is already making progress. To date the following stock car chassis have been registered: 50-horsepower Simplex, Colby model J, Maxwell Mercury and Special, Staver-Chicago 35-B, Velie H-I, Hudson 33, Speedwell 12, and Abbott-Detroit C-44.

Page Makes Suggestions—Director of Public Roads Page, of the department of agriculture at Washington, D. C., has made a number of suggestions for the improvement of the conditions of the roads in Indiana. Among his recommendations are the following: A policy of centralization; the creation of a highway department made up of a non-paid highway commission, which shall select a highway engineer of the highest possible attainments to supervise the road building of the state; state aid in road building; legislation requiring all road taxes be paid in money; for every mile of road built with the aid of the state money a certain amount be set aside for the maintenance under the state highway department.

Will Raise a Million—The commercial organizations of the various communities of Yakima county, Wash., have pledged themselves to raise $1,000,000 to be spent on county roads. The contemplated system of paved highways includes a trunk thoroughfare the length of the county, with side roads into every fruit growing district.

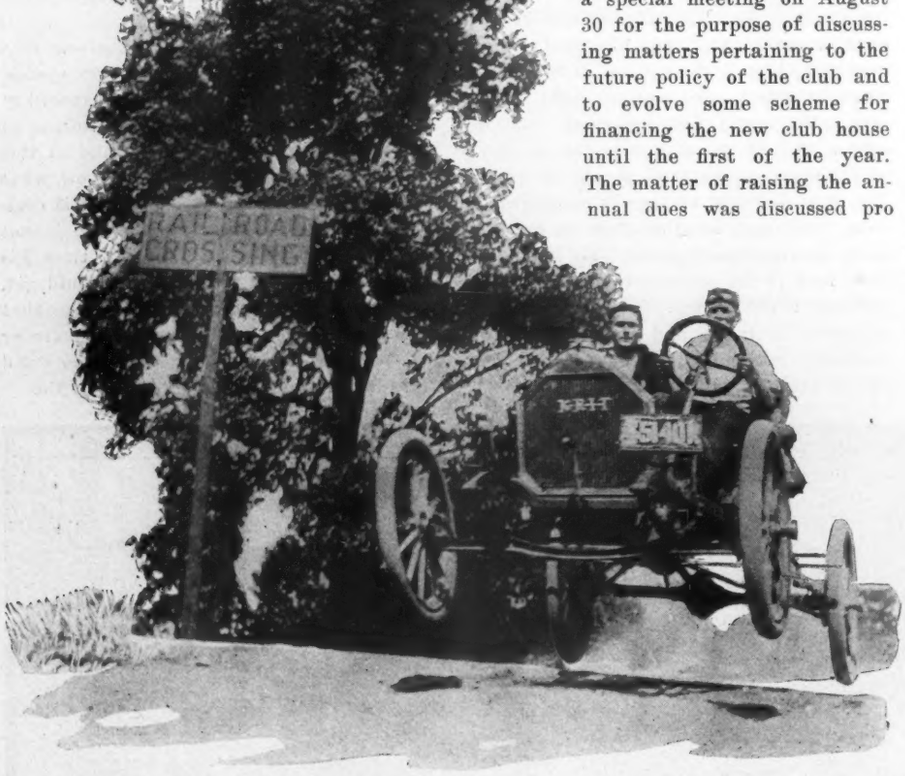
Nebraska Run Postponed—On account of the large number of Omaha dealers desiring to exhibit their cars at the Nebraska state fair, the third annual endurance run of the Omaha Motor Club, which was scheduled for September 6 to 9, Omaha to North Platte and return, a distance of 750 miles, it has been decided to hold the run a week later, the new dates being September 12 to 15. This change of dates will enable a large number of dealers and others to enter, who otherwise would have found it impossible.

Milwaukee Club Needs Funds—Members of the Milwaukee Automobile Club held a special meeting on August 30 for the purpose of discussing matters pertaining to the future policy of the club and to evolve some scheme for financing the new club house until the first of the year. The matter of raising the annual dues was discussed pro and con, and officials of the club state that it is practically certain that dues will be increased from $6 to $11. The club now has a membership of 550, but it is admitted that the present income of the club is insufficient to tide over the organization through the year. The annual meeting of the club will be held on the first Thursday in October, when definite action will be taken on increasing the dues and other matters of financing the organization.

Jaunt for Hoosiers—The Indianapolis Trade Association, with which are identified most of the motor car concerns of Indianapolis, will make its ninth trade extension trip September 26 and 27. A special train will be used and about 150 members of the association and a brass band will make the trip, visiting retail dealers and distributing advertising matter. On the evening of the 26th the Fort Wayne Commercial Club will be host for the party. Places to be visited include Royerton, Shideler, Eaton, Hartford City, Montpelier, Keystone, Poneto, Bluffton, Kingsland, Ossian, Fort Wayne, Decatur, Monroe, Berne, Geneva, Briant, Portland, Ridgeville, Winchester, Lynn, Fountain City and Richmond.

Akron Club Complete Organization—The formal organization of the Akron Automobile Club, which was recently incorporated under the laws of Ohio, has been completed by the election of the following officers: Guy E. Norwood, president; J. Ben Campbell, vice-president; F. L. Lampson, treasurer, and G. B. Motz, secretary. These officers with George G. Brown, Fred W. Work, L. D. Brown, Stacy C. Carkhuff, Bert A. Polsky and Arthur Leavitt constitute the board of directors. The club is organized under the Ohio laws with a capital of $10,000 which is divided into shares of $10 each. A holder of one share of stock is entitled to membership in the club. Subscriptions for stock are coming in fast and it is believed the club will start off with a membership of 500.

Poor Roads in Kent County—Road commissioners of Kent county, Michigan, have a tremendous task on hand, as was conclusively demonstrated in a motor tour of the commissioners over all the country roads. The inspection showed that about 75 per cent of the roads is in poor condition and in need of immediate repair. This fact is true especially of the northern section of the county, in which the commissioners found but three pieces of improved roadway. With but few exceptions the road leading to villages and towns are extremely bad. The inspection strengthened the determination of the commissioners to devote their energies toward the improvement of the through highways first, giving the farmers suitable access to



Seldom it is a photographer is fortunate enough to catch a motor car with all four wheels off the ground. Probably the one best remembered is the snap of George Robertson's Locomobile in the 1908 Vanderbilt; but here is a little Krit which is passing over a railroad crossing at such speed that one can see daylight under the car

Four Winds

all the villages and towns in the county. In not a single instance were they met with discouragement and many property owners have offered them all the aid in their power to promote a speedy improvement of present conditions. It is probable the commissioners will ask $500,000 for the work.

Tip for Tourists—The Automobile Club of Syracuse has received word that the macadam road between Cortland, Me., and Dryden is now open for traffic. From Cortland to Ithaca is now solid macadam except through the village of Dryden. This section is greatly used by through tourists, east and west.

Denver Outing Postpone — The annual outing which the Denver Motor Club gives the city's orphans is being planned for some date in the near future. Arrangements had been completed for it last Saturday, but a severe storm forced a postponement. The club expects to provide cars for 1,500 homeless children.

Kansas City Meet Postponed—The race meet which was to be held in Kansas City, Mo., 3 days ending Labor day was postponed on account of the condition of Elm Ridge track. W. M. P. Stevens, secretary of the club, said that he was not going to take any chance of accidents, so the meet will be held September 18 and 19.

Oklahoma Run Next Month—The annual endurance run of the Oklahoma State Automobile Asociation for the Daily Oklahoman silver trophy will be started from Oklahoma City October 9 and will embrace the southwestern part of the state, dipping into northern Texas. The route will be 1,000 miles. The tour is under the sanction of the A. A. A. and will consume about 6 days of actual driving. The pathfinding work will be directed by A. F. Binns, chairman of the runs and tours committee of the state organization, who will make the pathfinding trip during the first week of September.

Novel Road Race Proposed—There is a certain amount of originality in the race which Comte de Liedekerke intends to hold in Belgium on Sunday, September 10. Believing that prolonged high speed is the most severe test to which a motor car can be subjected, it is proposed to hold a race over a course measuring only 14 miles round to be covered 18 times at a minimum average speed, the winner being the car which maintains the average imposed and shows the greatest amount of regularity for the whole of the rounds. The race will be open to all types of cars having a cylinder area varying between 2 liters and 3 liters 6, thus comprising all the smaller and medium-sized cars so popular in Europe at the present time. The average minimum speed insisted upon will vary between 36 and 45 miles an hour according to the cylinder area of the contesting cars.

Parker Quits Commission — Chairman Harold Parker of the Massachusetts highway commission has sent his resignation to Governor E. N. Foss. His retirement from the commission comes as a big surprise as he was thought to be a fixture there. He has been a member of the commission since 1900 and is recognized as one of the foremost experts in the country on highway construction. Colonel William D. Sohier and Frank D. Kemp are the two remaining members of the commission, and as both are republicans, as was Mr. Parker, it is expected that Governor Foss will appoint a democrat to the place.

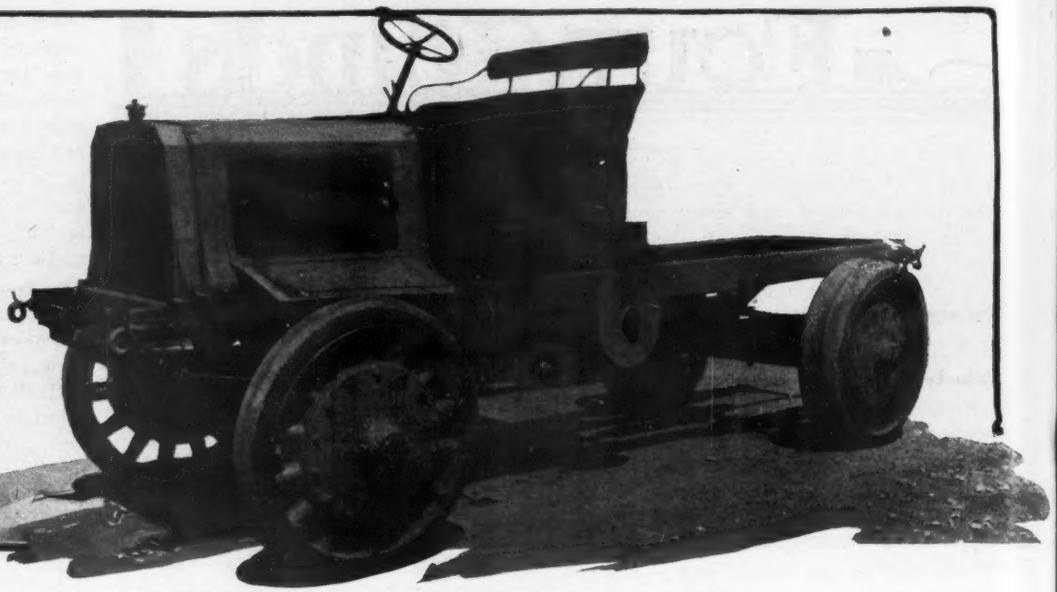
Denver a Motor Mecca—One of the most conclusive proofs of Denver's popularity as a goal for eastern motorists is the recent announcement of the city fire and police board that so far this summer 600 visitors' licenses have been issued. This is an increase of 200 over the entire season of 1910. Since it is not necessary for a visitor to secure a license for a stay of less than 3 days the above figures represent only a part of the number of tourists who have stopped in Denver. On Saturday, August 12, twenty-one cars, representing eleven states, were seen on the streets. Interesting figures regarding the cost of long distance tours were given by a party just arrived from Dayton, Ohio. Excepting an accident which caused $20 worth of damage, the average total daily expense for the five passengers was $2.10, this amount including hotel bills

Memorial Fund Growing—Within less than a month there has been subscribed to the John Anderson memorial road which is to be built in New Hampshire just $16,500. The Bretton Woods company subscribed $5,000 and the remainder was added by motorists who knew the late Mr. Anderson personally. Under the plans now worked out the boulevard will be about 25 miles long and connect Crawford and Franconia notches. There were six grade

Hazleton, B. C., Their Destination — What is probably one of the most important pathfinding tours undertaken on the Pacific coast in several years, was inaugurated on Monday, August 28, when P. E. Sands, manager of the E-M-F Northwest Co., at Seattle, and two companions set out in a 1912 Flanders on a trip of nearly 1,000 miles into the heart of the wilderness in northern Canada. Carrying a message from Mayor Dilling of Seattle to the mayor of Hazleton, B. C., they are out to win the gold medal hung up a year ago by the Pacific Highway Association for the first car to reach Hazleton by the overland route. Hazleton, about 60 miles from the Alaskan boundary, has existed for more than 50 years and conducted all its traffic with the outside world through the medium of boats.

Another instance of the jumping abilities of a motor car was furnished in the hill-climb at Bridgeport, Conn., in which Belcher in the Knox was one of the stars. So great a speed did the big car attain going up the hill that at one point it jumped many feet, the camera catching it with all four wheels off the ground

Motor Vehicles at French Agricultural Show



PANHARD FOUR-DRIVING WHEEL TRACTOR USED IN FRANCE

A GASOLINE tractor with four driving and four steering wheels, produced at the Panhard factory, was one of the most interesting of the exhibits in the agricultural motor show recently held at Melun, France, an agricultural town 30 miles to the south of Paris. The tractor is intended for general utility work on rough ground in connection with agricultural, industrial, or military pursuits. The present vehicle, after undergoing a long series of private tests, will be made use of in the army maneuvers in France this fall.

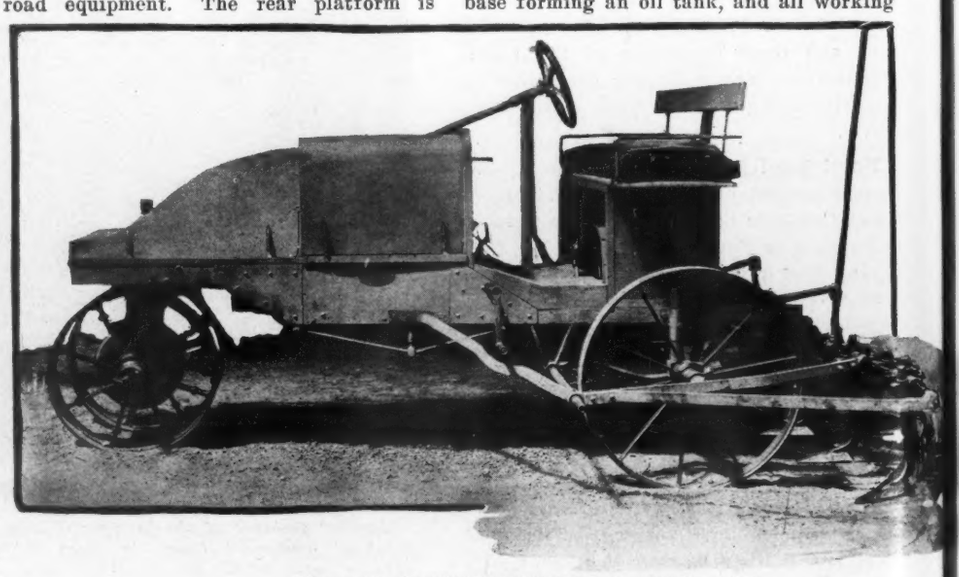
The tractor has as its driving power a six-cylinder Panhard-Levassor motor nominally rated at 35 horsepower, and having a bore and stroke of 3.9 by 5.5 inches, respectively. All the cylinders are cast separately, but they are bolted together in such a way that there is a common water-jacket for the group, water piping being consequently reduced to that prevailing on motors cast enbloc. The power is transmitted through a multiple-disk clutch to a four-speed gearset having gate change, neither clutch nor gearset presenting any particularity of design. Immediately behind the gearset, and attached like it to the frame members, is a housing carrying the differential and countershaft. The whole of the shaft is encased with the exception of the two extremities which extend beyond the side frames and receive a ribbed drum carrying an internal expanding brake. The drive is double from the countershaft, there being four propeller shafts, really forming two pairs, running respectively to a front and rear wheel on each side. Mounted on the axles are two cross shafts taking the final drive from the longitudinal shafts to the road wheels. The cross shafts are fitted with an enclosed universal joint, and at their inner extremity have a bevel gear meshing with the bevel pinion on the extremity of each propeller shaft. These final drive cross shafts, with their universal joints and bevel gearing, are entirely enclosed, and the four longitudinal shafts, each with a universal joint at each end, are also carried within housings.

There are three systems of brakes: a motor brake, the foot-operated brake on the countershaft, and the hand-operated brakes on the four road wheels. This latter system is equipped with an equalizing mechanism between a front and a rear wheel on opposite sides.

As it is intended that the tractor shall be efficient on any kind of ground, it is fitted with a differential locking mechanism, put into operation by means of a lever on the driver's side of the frame. All four wheels are steerable, the gear consisting of the usual worm and sector for the front pair, with a connection up to a separate steering box mounted on the frame for the rear wheels, this second mechanism of course being operated from the first. It is declared that the tractor is capable of turning in a 36-foot radius, although its wheelbase is 10 feet 10 inches. The total weight of the truck is 6½ tons, with full road equipment. The rear platform is capable of taking a load of 2 tons, and the tractor is designed to haul loads of 10 to 12 tons over all ordinary roads. On rough surface hills it has been tested over grades exceeding 18 per cent.

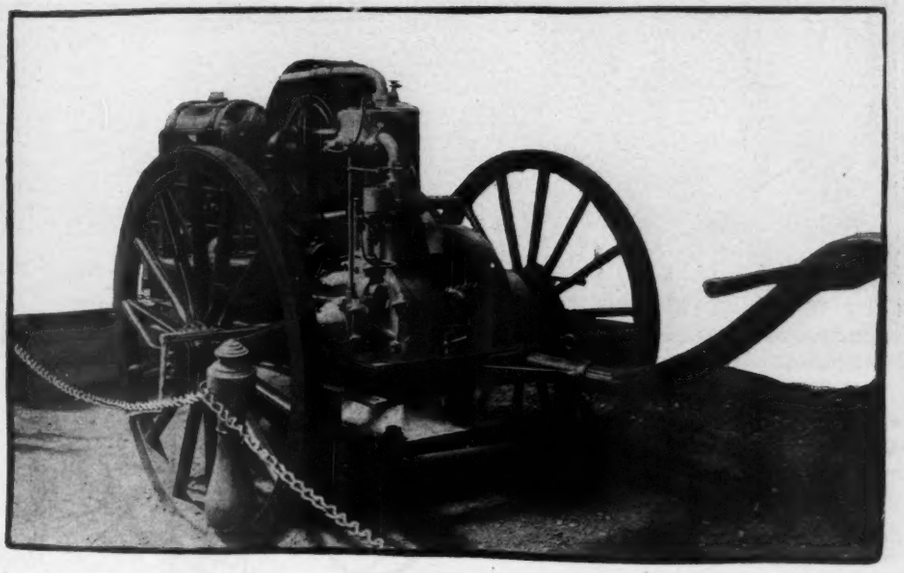
Provision has been made for fitting a worm-driven winch on the front of the tractor, with the low ratio of 18 to 1. This will be used for hauling trucks out of difficult position, or for extricating the tractor itself if in a dangerous position. Clearance is considerable, the frame members being 32 inches from the ground, and the lowest portion of the mechanism giving a clearance of 12 inches.

The exhibition comprised a fairly comprehensive display of motors and trucks for agricultural purposes, but the majority of them had already been seen in previous shows. The features on which French manufacturers are specializing is the production of small stationary motors for driving various classes of farm machinery. They are generally of the vertical single-cylinder type with valves enclosed, the base forming an oil tank, and all working



MERMAY FRONT-WHEEL-DRIVE MOTOR HOE

PANHARD SLIDING SPRING BLOCK



DE DION SINGLE-CYLINDER MOTOR FOR FARM USE

parts protected against dust. A typical example was to be found in the Dansette-Gillet, a single-cylinder long-stroke model, with mechanically-operated valves mounted side by side, having their stems enclosed, the high-tension magneto carried on a platform immediately above the starting crank, and the lubricant carried to the bearing under pressure. The external flywheel can be used for transmitting power by belt, and in addition a fast and loose pulley are mounted on the motor shaft. The more powerful types of horizontal single-cylinder motors have not met with very much success for general farm work.

The De Dion-Bouton company has also specialized in this line, its stand carrying a big series of vertical motors, one of the most interesting of which was shown fitted to a steel frame on wheels, with the motor swung so low that it could be wedged without difficulty to obtain satisfactory running in any position.

FRENCH HORSE CENSUS

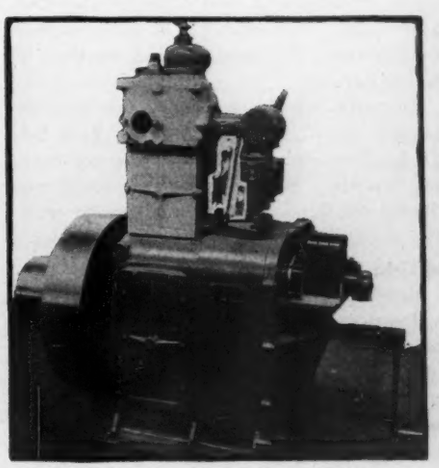
The horse is dying in Paris. According to the army authorities, who keep a very close count on all horses fit to be called up in case of the mobilization of every branch of city life. The Paris General Omnibus Co. alone is responsible for a diminution of 6,500 horses, this representing but 30 per cent of its total; the remaining 70 per cent are destined to disappear within 2 years, according to a contract between the company and the city authorities. The greatest losses have been felt among cab horses and saddle and carriage horses, the more aristocratic quarters of the city having undergone a complete transformation. There has been comparatively little change in the industrial portions of the city where heavy draft horses are used, for local conditions are such that the adoption of heavy commercial vehicles is lower than in other towns.

Admitting that the horse was going out of use for pleasure purposes, interested troops, the loss has been 24,210 horses during the past 10 years. The census of 1901 showed that there were 96,698 horses; in 1911 the number has been reduced to 72,488, notwithstanding extensions in persons recently have sought to bring it into popularity by having some of the more fashionable avenues in the Bois de Boulogne closed to mechanical traction. The matter is now before the municipal council, and the proposal is being opposed by motorists and by the proprietors of restaurants and cafes in the neighborhood. The latter point out that the horse has disappeared, and that to close the avenues to motor vehicles would be equivalent to closing them to all traffic. St. Germain, a fashionable holiday resort a few miles to the west of Paris, has had long experience with some of its avenues closed to motor traffic.

STARTS A MOTOR EXPRESS

T. W. Moore, of Wilmington, Del., has inaugurated a motor express delivery service between Wilmington and Newark, Del., which is 12 miles south of Wilmington, the route taking in, besides the terminals, the towns of Newport, Stanton and Christiana. All of these towns, except Christiana, are connected with Wilmington by rail, the Pennsylvania and B. and O. lines passing through both Wilmington and Newark and the Pennsylvania through Newport and Stanton, with frequent train service.

PANHARD SHAFT-DRIVE ON FOUR-WHEEL DRIVE TRACTOR



DANSETTE-GILLETT MOTOR

MARTIN TRACTOR ATTACHED TO THE SPRINGFIELD, MASS., WATER TOWER

FIRE DEPARTMENT MOTOR TRACTOR

SPRINGFIELD, Mass., one of the latest cities to adopt motor-propelled fire-fighting apparatus has recently added a novel equipment to its fire-fighting vehicles in the form of an aerial tower or water tower, as often designated, which has been converted from a horse-drawn type. The Knox company, in producing this converted water tower has aimed at furnishing a vehicle specially useful for high buildings. As illustrated, the tower lies horizontally on a two-wheel truck or tractor. The water tower is not an integral part of the vehicle, but rather assumes the form of a trailer hitched behind a four-wheel tractor. This tractor consists of a steel frame, carrying a motor and gearbox machinery which is placed in front of a fire engine, or other apparatus, designed to be horse-drawn. It rests on the front axle of the vehicle to which it is attached. In front it is supported by a single wheel, or two wheels placed close together. This construction gives it a more or less freaky appearance, but is necessary in order to make short turns and handle the vehicle in narrow streets. The complete outfit as illustrated can be turned in a street 20 feet wide.

The frame is supported on an easy spring in both front and rear, which prevents the engine and drawing mechanism from being shaken to pieces on rough roads. The engine is geared by means of chains and sprockets to the front wheels of the vehicle, the whole making a complete motor-drawn piece of fire-fighting apparatus. This device is as well adapted to all kinds of heavy trucking as it is to fire apparatus.

In tests this tractor has hauled 18,000 pounds up an 8 per cent grade with but 21 per cent of the total load on the driving wheels. With this tractor all horse-drawn fire-fighting apparatus can be readily converted into motor fighting types.

MODEL MOTOR PATROL

Revere, Mass., has accepted delivery of a Peerless motor patrol wagon which is regarded as one of the finest ever put in commission anywhere. As Revere has within its confines the only big bathing beach within easy reach of Boston, and where crowds of 100,000 on a Sunday are not unusual, the officials found that the horse-drawn vehicle was not serviceable for police purposes, particularly in accident cases. The new wagon may be used either as a patrol wagon or an ambulance.

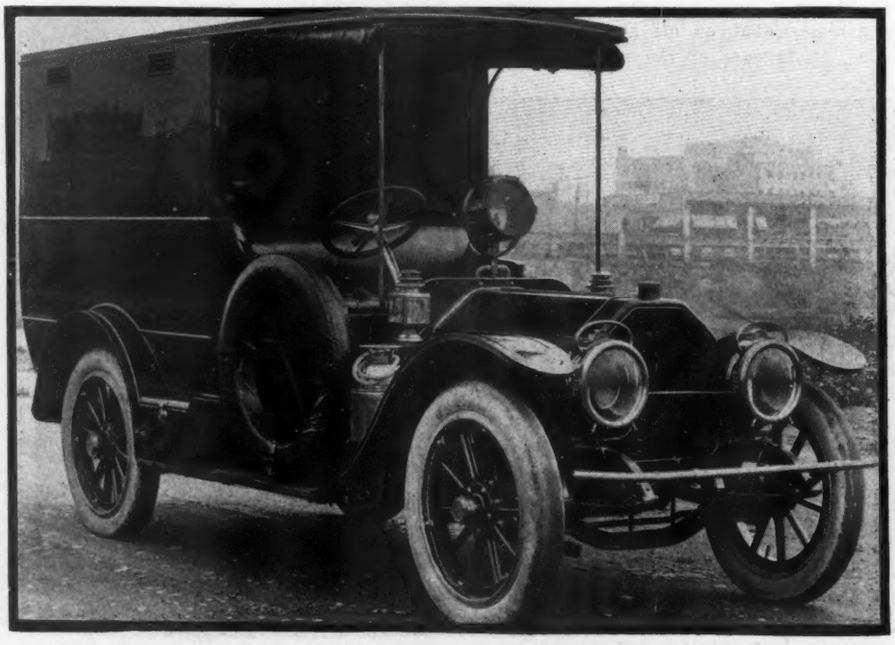
The chassis is a standard four-cylinder Peerless of 1911 model, on which is mounted a closed steel body of the patrol wagon type, except that the rear is provided with a door with outside lock, enabling the transportation of the prisoner from the signal box to the station without the necessity of the arresting officer leaving his route.

The body and chassis are finished in Peerless blue, with lamps and other metal parts in brass. The interior of the body is painted gray, with seats of hardwood in natural finish. These seats are hinged so that if desired they may be folded against the sides of the body. Under one of these seats is stored a compactly folded stretcher, which may be suspended from the top of the body when required for ambulance use, and is furnished with handles for carrying purposes.

The interior is lighted by two electric dome lights, controlled from the driver's seat. The front and rear of the body are provided with good sized ventilators, protected by grillework. There are also two small ventilators on each side.

The exterior of the body is plain with the exception of the words "Town of Revere," which appear in the lower seat panel on each side, while the upper panel contains a large fac simile of the town seal, handsomely painted in colors.

The chassis is fitted with every conceivable requisite for safety and convenience. The front is protected by a bumper with strong spring buffers. The tires are all of the same dimensions, and on demountable rims to facilitate changing. An extra tire is carried on the right-hand running board,



PEERLESS MOTOR PATROL USED IN REVERE, MASS.

KNOX TOWER AND TRACTOR, USED IN SPRINGFIELD, MASS., MEASURES 57 FEET OVER ALL

Commercial Car

inflated ready for use when occasion requires. All tires have non-skid treads, and as additional safeguard there are tire chains for use on both front and rear wheels when the condition of the roads makes their use advisable. A four-cylinder mechanically-operated tire pump is also part of the equipment. On the dash are mounted a combination speedometer and odometer and a clock. Here also are located within easy reach of the driver the switches controlling the electric lighting devices on the two large gas headlights and the swivel searchlight, which is supported by a strong bracket on the top of the dash. The tail and side lamps combine oil and electric lighting, the latter under control of the driver without leaving his seat.

In addition to the usual signal horn there is a large rotary gong and an electrically operated siren horn, either of which gives sufficient warning to insure a clear road.

On the left-hand running board is a large tool box with the generous tool equipment. On the right-hand running board, in addition to the extra tire, is carried a box containing an emergency outfit. At the front end of each running board is mounted a fire extinguisher in readiness for instant use. Under the rear step is a box containing the stretcher accessories.

TRANSPORTING BEEF

To fully comply with the law in the transportation of beef and other meat foods, large wholesalers have long faced a difficult problem and unnecessary expense in the scheme of handling. This is now obviated by a new design of body for a meat truck which has been built upon the chassis of a 5-ton Sampson freight motor for Rohe & Brother, of New York, by the Sampson division of the United States Motor Co. The body not only simplifies loading and reduces transportation expense, but is very ingenious as well as thoroughly practical.

SAMPSON TRUCK USED FOR TRANSPORTING BEEF

Meat inspection laws require that all beef shall be loaded in the presence of the inspector and remain sealed against access until its arrival at the point of delivery, where the seals are broken by an inspector. Thus it has been impossible for the wholesalers to make more than one delivery of beef on a single trip. This, of course, has been expensive and troublesome.

The new truck has a large side door opening into what appears to be an upper and lower compartment running the full length of the body. Actually, however, there are three compartments; two of them are plainly shown in the illustration, separated by a removable slat shelf that can be folded up and put out of the way. This arrangement provides either one or two rear compartments, as may be desired. The third is formed by a vertical partition which is set immediately forward of the side door jam, and is built so that it may be locked and sealed. This makes it possible for the shipper to use the forward compartment for beef, properly loaded and sealed, while the other compartments are accessible and unsealed, permitting any number of deliveries to be made from that part of the body without in any way disturbing the sealed compartment.

The loading of hams and porks is done in a novel manner. Large bins, constructed especially to fit the rear compartments and mounted on castors, roll into position inside the body with little or no effort, and all the goods which are transported are handled in these bins or units. They may be placed upon the floor compartment or upon the shelf above.

The doorway on the right side of the body is a new feature which is appreciated in all lines of shipping, since it is possible for the truck to pull up at the right-hand curb and immediately begin loading or unloading on the sidewalk or the shipping platform, whichever the case may be, without the necessity of backing or maneuvering for position. This also eliminates the necessity of frequent interruption by street cars and other large vehicles which have equal rights in the thoroughfare.

Among the Makers

HAS New Radiator Plant—The Candler Radiator Co., Detroit, Mich., has purchased a new factory with a capacity of 250 radiators per day.

May Get Otto Plant—If $100,000 can be raised by Mount Holly, N. J., financiers, the Otto Automobile Sales Co., of Philadelphia, has declared it would move its plant there immediately.

Make 96 Per Cent of Own Parts.—Recent extensions to the plant of the Thomas B. Jeffery Co. at Kenosha have made it possible for the Rambler people to announce that they are now making 96 per cent of all the parts that go to make up Rambler cars.

Increasing Rubber Plant.—The Miller Rubber Co., of Akron, Ohio, has purchased a tract of land on the Manchester road in Kenmore, near Akron, to give room for the expansion of the concern. The company announces that plans are being prepared for large additions to the plant.

Buick Owners Visit Boston.—The Boston branch of the Buick kept a record this summer of the transients who used Buick cars and called at its salesrooms, and found that every state in the union except five was represented. There were more than 500 tourists in Buicks registered at the Boston branch.

Assistant to Elmer Apperson—T. Earle Jarrard, who for the last 5 years has been connected with the Reo Motor Car Co. and R. M. Owen & Co., has gone with the Apperson Brothers Automobile Co. of Kokomo, Ind. Mr. Jarrard will be assistant to Elmer Apperson, president and general manager of the concern.

Denver's Strength—The Denver fire and police board has just announced that at present its records show 5,400 motor cars and 2,000 motor cycles owned by citizens of Denver. Using the figures of the 1910 census, 213,381, for Denver's population, the city has one car for every thirty-nine persons.

An Interesting Sight—That the prejudice which once existed on the part of farmers against motor cars has been overcome is shown by the fact that at the recent Champaign county fair held at Bellefontaine, Ohio, there were 2 solid acres of cars owned by farmers. So unusual and striking was the sight that a photograph was taken of the collection of cars.

New Tire Edifice.—The new 20-story office building now being erected at the corner of Broadway and Fifty-eighth street, New York, when completed will be occupied by the United States Rubber Co. and the United States Tire Co. The new structure will enjoy the double distinction of being the tallest building north of Times square, as well as the largest building in New York connected with the motor industry. The United States Tire Co. will occupy the store, with storage space beneath, while the general offices of the company, together with those of the United States Rubber Co., will be in the upper portion of the building. Each of the 20 floors contains approximately 6,300 square feet, if undivided. Sub-divided, each floor provides seventeen offices, varying in size from 230 square feet to 630 square feet from 230 square feet to 630 square feet.

In the above illustration one gets an idea how busy the makers are in Detroit at this time of the year. It represents the shipping platform of the Brush Runabout Co., which at the present time is sending out eighty cars a day by freight, it is claimed

Ohio Receipts—There is an increase of 41 per cent in the receipts of the Ohio state motor car department up to July 1 of the present year, in comparison with the same period in 1910. The gross receipts up to July 1 were $209,750.70, as compared with $148,608 in the corresponding period in 1910. This showing is considered good when it is realized that Ohio charges a flat rate of $5 for gasoline cars and $3 for electrics, while in most states the fees are based on the horsepower of the cars registered.

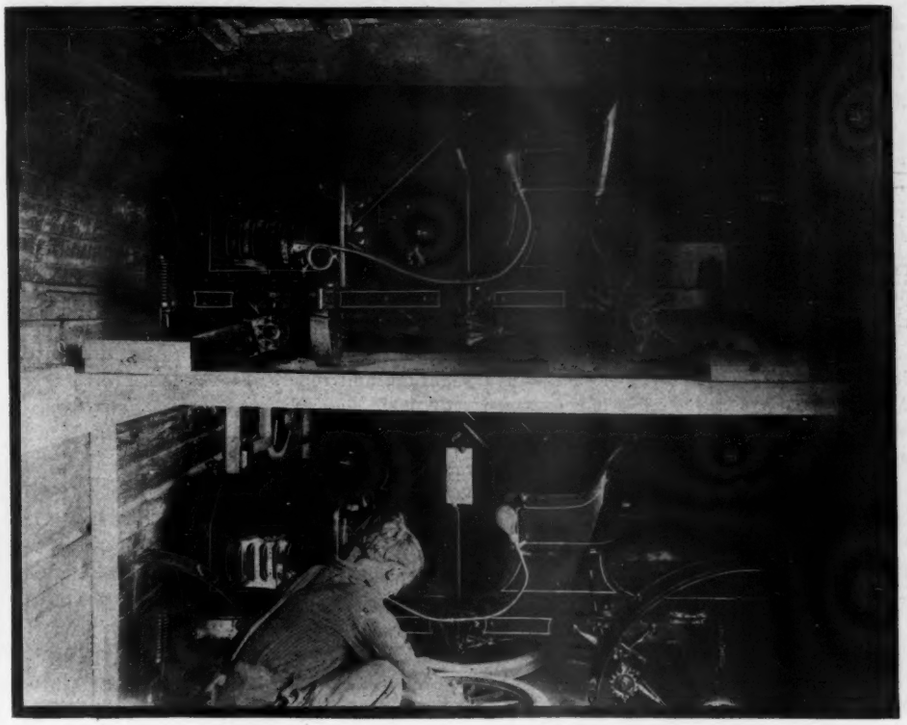
Dealer Sues a Bank.—John H. Ebersole, who formerly had the Marion agency in Washington, D. C., has filed suit against the District National Bank to recover $3,425. The sum sued for is said to represent profits on ten motor cars which Ebersole declares would have been earned but for the alleged refusal of the bank to release the cars to him. The bank held warehouse receipts for the motor cars as security for a loan of $8,925, the cost of the cars, made by the bank to Ebersole. The latter avers the bank entered into an agreement with him whereby it promised to release one or more of the cars to him at any time upon payment of a proportionate amount of the loan in order that he might dispose of the cars. It is alleged the bank did not keep its agreement, although Ebersole asserts he made tender of the proper amount of cash.

To Make Motors and Trucks.—The Automobile Mfg. and Engineering Co., of Detroit, has increased its capital stock and will manufacture the Evans motor and the Evans Limited commercial wagon. The company expects to make 5,000 motors for 1912.

Sales Company Organized—The Crow Motor Car Sales Co. has been organized at Elkhart, Ind., the home office and factory of the Crow Motor Car Co., with Otto F. Rost, of New York City, president and general manager. The company will have charge of the sales of the Crow-Elkhart cars in the eastern territory.

Reeke Milwaukee Rambler Manager.—G. M. Berry, secretary of the Thomas B. Jeffery Co., of Kenosha, Wis., manufacturer of the Rambler car, has announced changes in the sales and service plans in connection with its Milwaukee branch. Al Reeke, who has been with the company for several years, has been appointed sales manager, succeeding A. W. Shattuck. Mr. Reeke will have charge of Milwaukee, practically all of Wisconsin and upper Michigan. Announcement has also been made that the Rambler garage, which for

and Dealers



The Brush Runabout Co. finds that it is possible to ship seventeen Brush runabouts in one freight car because of the smallness of the Liberty-Brush. This is made possible by double-decking the cars; that is put one machine above the other

some years has been open to owners of all cars, will be discontinued as a public garage and the space given over to added facilities for the service of Rambler owners. Arrangements have been completed for remodeling the salesroom.

Simon at Peerless Factory.—George B. Simon, who for the past 2 years has been assistant superintendent of the Oliver Chilled Plow Works, of South Bend, Mo., has resigned his position and has assumed the duties as assistant to the manager of the Peerless Motor Car Co., of Cleveland, Ohio.

Maxwell Employes Buy Land.—Twenty-six acres of land have been purchased by about 100 employes of the Maxwell-Briscoe Motor Co. at Newcastle, Ind., and they will build cottages for their own use. The price paid for the land was $500 an acre, all of which was subscribed by the employes of the motor car factory.

Will Make the Dalton—Hubert Dalton, formerly of the Buick Motor Co. and the Flint Wagon Works, is interested with James R. Whiting in the manufacture of motor cars at Flint, Mich., which he hopes to have ready for manufacture for the 1912 trade. The models are of the runabout and touring types with specially designed engines. For several months Mr. Dalton has been designing and manufacturing the two models of machines which, when placed on the market, will be known as the Dalton. They will be manufactured by a company which is expected soon to be formed under the name of the Dalton Motor Car Co. Whether or not the company will locate in Flint has not been decided upon.

Activity at Peerless Plant.—Daily additions to the working force of the Peerless Motor Car Co. have brought it up to the largest in the history of the company. The actual working force now numbers over 2,200, and this does not include office employes or executives. A number of the departments are working with day and night forces.

Will Handle Foster Pump.—The Brown Sales Co., of Elkhart, Ind., has been incorporated with a capital stock of $5,000, to deal in mechanical devices. The directors are Walter and Beryl Brown and E. A. Skinner. The company will be the distributing agent for the Foster tire pump, an invention of W. H. Foster, of Elkhart, and manufactured by the Foster Machine Co.

New Mitchell Branches.—The Mitchell-Lewis Motor Co., of Racine, Wis., has filed articles of incorporation for four branch houses. The new branch concerns are the Mitchell Motor Co. of Seattle, the Mitchell Motor Co. of Atlanta, the Mitchell Motor Co. of Kansas City, and the Mitchell Motor Co. of Philadelphia. The capital stock of each is $10,000, and the incorporators in each instance are the same, including C. A. Armstrong, G. V. Rogers and F. L. Mitchell. Mr. Mitchell states that the object of the new companies is to improve conditions at the general depositories. He says that in 1912 the output of the Mitchell-Lewis plant will number at least 6,000 cars.

Ohio Invading Canada.—The Ohio Motor Car Co. is reported to be considering opening a plant in Canada similar to the one established by the Schacht.

Joins Henderson Forces.—On September 1 R. P. Henderson became identified with his brother, C. P. Henderson, in the Henderson Motor Sales Co., Indianapolis, general distributor of the Cole. For 5 years R. P. Henderson was sales manufacturer of the Parry Mfg. Co., vehicle manufacturer.

New Canadian Enterprise—In Brockville, Ontario, the contract for the erection of a new car factory opposite the premises of the Canada Carriage Co., in the northern part of the town, has been awarded to A. F. Byers and J. P. Anglin, to be completed by September 1. A company capitalized at $2,000,000 was recently formed by C. W. MacLean, W. H. Comstock and T. J. Storey as directors.

Ohioans Buying Cars—Ohio never bought so many cars in its history as it is doing right now, according to Registrar of Motor Cars Shearer. His quarterly business reports shows that he turned $49,759 into the state treasury. Owners registered numbered 8,096 and chauffeurs 1,783. The year so far has made a high-water record over any year totals. Last year the total registration was 32,000. This year to date it has been 43,000.

New Wheel Company Rumored.—It is reported that a movement is under way at Racine, Wis., for the organization of a company with a capital stock of $50,000, to take up the manufacture of a new type of wheel, patented by F. F. Urie, of Kansas City, and it is said that he is being backed by A. B. Scully, the well known steel manufacturer of Chicago. The wheels have a solid rubber tire, and instead of spokes are equipped with springs and rubbers.

Luce Moves to Chicago.—Morton H. Luce is leaving Boston to take up the management of the Velie Chicago branch and to handle the sale of Velie motor cars and trucks in Illinois, Wisconsin, Michigan, Indiana and Ohio. Harold D. Bernstein, of the Velie Boston branch, will take up the management of the Velie interests in New England. H. G. Moore, formerly Chicago branch manager, will handle the southeastern territory for the Velie, with headquarters in Atlanta.

Westcott's Change of Plans.—The Westcott Motor Car Co., of Richmond, Ind., manufacturer of Westcott cars, announces that the selling arrangements with the Henderson Sales Co., of Indianapolis, having been canceled, henceforth the sales of the Westcott will be handled from the factory, and an independent sales organization will be built up throughout the country. This work is in the hands of H. E. Shiland, newly appointed sales manager of the Westcott company.

BRIEF BUSINESS ANNOUNCEMENTS

KANSAS CITY, Mo.—The Bond Motor Co. has taken the agency for the Krit line.

St. Lous, Mo.—The Heinrichs Automobile Co. has taken the agency for the Michigan car.

New York—Byrne, Kingston & Co. have moved their New York office from 1650 Broadway to 1733 Broadway.

Portland, Ore.—Another car has been added to the list handled by Neate & McCarthy of Portland. The latest is the Hudson.

Charlotte, Mich.—H. Burger, of the Burger & Losser garage, has sold out his interest to Clifford Roades, of this city. Mr. Roades will take immediate possession.

Washington, D. C.—The Commercial Automobile and Supply Co. has taken the Flanders electric agency and will handle it in connection with the E-M-F and Flanders.

Denver, Colo.—The Mathewson Auto Co., 1644 Broadway, has placed large contracts for next year's Reo and Locomobile cars for which it will again hold the agencies.

Milwaukee, Wis.—A. S. Johnson, formerly manager of the Herreshoff Motor Construction Co., and Charles E. Smith have established a motor school in Milwaukee.

Lima, O.—Fred and Charles Thoring, under the name of Thoring Brothers, have entered the motor livery business in Lima, with headquarters at Mack's garage on West Market street.

Kansas City, Mo.—The C. F. Splitdorf Corporation of New York has established a branch in this city. E. A. Kelly, manager for the Splitdorf in San Francisco, is temporarily in charge. A service department will be maintained.

Boston, Mass.—Charles Basle, the racing driver, has been engaged by the Boston Matheson agency to demonstrate its cars in Boston. Warren T. Walker has been appointed New England traveling representative for the agency.

Boston, Mass.—E. P. Blake, who has the McIntyre truck, is negotiating for the agency for the Corbin car which was recently relinquished by the White, Ware & Leatherbee Co. Mr. Blake also has added the Clark to his line.

New York—E. J. Montigny, 33 Grant Square, Bedford avenue, Brooklyn, N. Y., has contracted with the Abbott Motor Co., Detroit, Mich., as wholesale and retail distributor for the city of Brooklyn and Long Island. He has doubled his contract of last year for Abbott-Detroit cars, and is remodeling his large building in Grant square into a general service depot and will make the lower floor into a retail salesroom. Warren E. Tocker, of Richmond Hills, L. I., is co-operating with him in this enterprise.

Wapakoneta, O.—Elliott & Payne, agents for the Overland, have moved into new quarters and now have two large rooms, each 75 by 150 feet.

Denver, Colo.—Alfred E. Laudman, district manager of the Willys-Overland company, has established headquarters with the Overland Automobile Co. of Denver.

Gaza, Ia.—Hans Peterson, of this place, is building a garage 30 by 40 on North Main street and will handle one or more makes of cars and a line of supplies and accessories.

Hudson, Wis.—The Hudson Garage Co. has been incorporated and chartered with an authorized capital of $10,000. The promoters are Emil E. Meyer, W. M. Grant and Charles Niegelby.

Warren, O.—The Universal Motor Co. is getting its arrangements completed for erecting its big plant in Warren, O. Manager L. C. Reprogle has been ill for several weeks but is now on the job and work will be started on the plant.

Washington, D. C.—The Wilson Co., formerly located at 1333 Fourteenth street, N. W., has taken temporary quarters at 1018 Connecticut avenue, N. W., pending the selection of a sales room in the down town section. The company will handle the Cole and Krit.

Pittsburgh, Pa.—The Lang Motor Truck Co., capital $25,000, has been organized in Pittsburgh by Edward L. Atkinson, Elias Lang, Rupert L. Border and others of that city and will continue the business of the Lang Wagon Co. in manufacturing motor trucks.

Portland, Ore.—The Fleetwater Auto Exchange Co., incorporated by John Dumbell, Winnie Fleetwater and Henry O. Proebstel, of Portland, has filed supplementary articles changing its name to the Auto Painting and Exchange Co., with a capital stock of $25,000.

South Bend, Ind.—Owing to the demand for car bodies the South Bend Auto Buggy Co. has been compelled to add new machinery and enlarge its force of workmen. The floor space has also been increased and it is planned to make a further addition in a short time.

Boston, Mass.—The Jackson no longer is handled as an agency proposition in Boston, the factory having opened a branch last week. A company has been incorporated as the Jackson Motor Car Co. of Massachusetts, with Treasurer H. A. Matthews of the Jackson company in Michigan as president. M. H. Bates, who handled the car in Boston and Brockton, has been made treasurer, and J. L. Judd is secretary and general manager. The branch will take care of the entire New England territory.

Chicago.—The name of the Cole Motor Co. of Illinois has been changed to the Cole Motor Co. It is located at 1470 Michigan avenue.

Kansas City, Mo.—The Stevens-Duryea Co. has no representative in this city at the present, the Nolan-Reicke Co., which handled the line, having quit business.

Hillsboro, O.—R. D. Currie has opened a garage and repair shop at the intersection of West and Walnut streets. The establishment contains 11,392 square feet of floor space.

Altoona, Pa.—The Vulcan Motor Supply Co. has been organized by Frank H. Seely, Jr., J. G. Tite and H. T. Slater, at Altoona, and will do a general motor car business.

Pittsburgh, Pa.—The Mutual Wind Shield Mfg. Co., capital $25,000, has secured its charter. The incorporators are A. J. Kraber, George F. Ferrier and Lorry Poffenberger.

Milwaukee, Wis.—G. P. Hewitt, formerly manager of the Buick Motor Co. branch at Milwaukee, Wis., has been appointed district manager for the Westcott cars in Minnesota, Wisconsin and Iowa, with headquarters at Milwaukee, Wis.

Grove City, Pa.—The Bessemer Motor Truck Co. has been incorporated under Pennsylvania laws by I. N. Lewis, J. E. Marquis, E. J. Fithian, L. M. Monroe, A. N. Allen of Grove City, Pa. It will have a large plant here for the manufacture of motor trucks and other motor vehicles.

Washington, D. C.—The Virginian Sales Co. has been formed to handle the Virginian, a car made in Richmond, Va. The officers of the company are Louis Hartig, president, and Louis Hartig, Jr., secretary and manager. The company is located at 3660 New Hampshire avenue, N. W.

Erie, Pa.—Charles E. Furn and Randolph S. Cook of St. Louis, Mo., have nearly concluded the purchase of a site in Erie on which they propose to build a large car plant. The company will manufacture a new model motor vehicle called the Elixir and will employ about 400 men at the start.

Kittanning, Pa.—The Kittanning Motor and Traffic Co. is conducting a garage and selling cars and accessories. The directors are J. S. Claypool, Roy M. Cox, D. L. Shaffer and D. E. Ackard. The president is E. G. Procious; secretary, W. A. Nicholson, and treasurer, M. S. Jack. C. A. Shaffer is vice-president and general manager. The

company has made the E.-M.-F. and Flanders agencies.

Syracuse, N. Y. — The J. H. Valentine Motor Car Co. has taken the Syracuse agency of the Paige-Detroit.

Sumter, S. C.—Von Ohsen & Shirer, who conducted for years a general repair establishment, will establish within the next few days a garage on East Liberty street.

Tacoma, Wash.—J. F. Hickey has recently established the White garage at 750 South C street, having the agency for the White line of cars in southwestern Washington.

Kansas City, Mo.—The Witiver Motor Car Co., which is the local agent for the Garford, Marion and Ohio electric, has signed a contract to handle the new Flanders electric.

Portland, Ore.—Ross B. Cooper has resigned as manager of the Portland Motor Car Co., Portland agent for the Winton and Abbott-Detroit. His future plans have not as yet been announced.

Manitowoc, Wis.—Splitt & Boettcher have opened a garage and repair shop on Washington street, near Twelfth street. Mr. Splitt comes from Chicago and Mr. Boettcher from Antigo, Wis.

Tacoma, Wash.—George A. Stewart, formerly sales manager for the Pacific Car Co., Tacoma, has been appointed district manager for the Everitt Northwest Co. His headquarters will be in Tacoma.

Boston, Mass.—The Commer truck is the latest to secure an agency in Boston, having been taken on by the Dodge Motor Vehicle Co., that also handles the Pope-Hartford and the Waverley electric.

Washington, D. C.—The Carpenter Automobile Co. has sold its garage at Seventeenth and U streets, N. W., to Francis P. Blair, who took possession on September 1. Extensive improvements will be made.

Coraopolis, Pa.—The Coraopolis Garage Co. has elected W. E. Laughner president and R. N. Ferree secretary and treasurer. The company has secured the agency for the Packard, Hudson, Ford, Franklin and E-M-F cars.

Topeka, Kan.—The controlling interest in the Weir Motor Car Co. was sold to W. H. Imes and Albert E. Jones and in the future the busines will be conducted under the firm name of the Jones-Imes Motor Car Co.

Baltimore, Md.—W. P. Shuler has taken a sales position with the Carl Spoerer's Sons Co., manufacturer of the Spoerer car in this city. Mr. Shuler formerly was agent for the Mitchell car in Baltimore and later went with the Dixon C. Walker Auto Co., Cole car, and Grabowsky truck representative here.

St. Louis, Mo. — The agency for the Knox has been placed in St. Louis with the Warren Garage Co., 4921 Delmar avenue.

Portland, Ore.—J. C. Barly, D. S. Du Bois and Russell E. Sewell have incorporated the Barly-Du Bois Auto Co. of Portland, capital $5,000.

South Bend, Ind.—Ralph M. Seely, of Detroit, has made arrangements to return to South Bend, and engage in business, under the name of the Seely Auto Sales and Training School. Courses will be given in driving, caring for, assembling and repairing cars. Rebuilt cars will also be handled.

Tampa, Fla.—E. F. Owen, agent for the Ford and associate proprietor of the Tampa Taxicab Co., has rented the new garage of Major Charles Wright, just east of Florida avenue.

Portland, Ore.—C. G. Arnold, who has been connected with the New York agency of the Pope-Hartford since 1904, and for the past years associated with the H. L. Keats Auto Co. of Portland, has accepted the management of the Olympic Motor Car Co. of Seattle, taking the position recently vacated by W. D. Wallace.

Blomberg, Tenn.—The Blomberg Auto Co. has announced the following changes in its officers and directorate of the company: Frank C. Blomberg, who has been the president and general manager, retires from the firm. J. B. York, president; Robert York, vice-president; P. A. Gates, secretary-treasurer; George H. Wise, formerly of New Orleans, sales manager.

Washington, D. C.—The Marion Motor Car Co. has leased the salesroom at 1333 Fourteenth street, N. W., now occupied by the Wilson Co., agent for the Cole and Krit. The latter will have temporary quarters with the Terminal Taxicab Co. pending the selection of a new salesroom. The Marion company will handle the Marion and American.

Baltimore, Md. — Among the recent changes among individuals in the local motor field are the resignation of A. R. Grundelle, manager of the Snap-On Chain Co. in this city, who will become advertising manager for the Lynn Motor Co., of Adrian, Mich. E. C. Briggemann will resign his position with the Little Joe Wiesenfeld Co. to sell cars for himself.

Seattle, Wash.—Announcement is made by the United States Tire Co. that a factory branch will be established in Seattle. The branch will be located at 706-708 East Pike street and will be in charge of A. E. Jones, formerly of the Morgan & Wright agency on the coast. Seattle will be the distributing station for the entire northwest field, including Portland, Tacoma, Spokane and British Columbia.

Boston, Mass. — The Lowe-Howard Co., agents for the Krit and Correja, is soon to give up the motor business. Mr. Lowe is ill and has not been able to give as much attention to business as formerly, and Mr. Howard has other interests that take up much of his time. When the stock is disposed of the company will dissolve. Willard M. Jenkins, who has the Mitchell and the Abbott-Detroit, has taken on the Krit line.

Recent Incorporations

Utica, N. Y.—B. I. Bristol Co., to deal in motor cars and motor cycles; incorporators, Benjamin J. Bristol, Bertha C. Bristol and Byron H. Smith.

Augusta, Me.—Autocrat Co., capital stock $150,000; to manufacture and deal in motor vehicles; president, C. H. O'Brien.

Bath, Me.—Bath Hotel Co., capital stock $50,000; to maintain hotel, garage and stables; incorporators, Rupert H. Baxter and Frederick E. Drake.

Hackensack, N. J.—American Automobile Co., capital stock $50,000; to manufacture motor cars; incorporators, R. D. Earle, G. M. Brewster, J. R. Ramsey and W. J. Wright.

Jersey City, N. J.—Marquette Co., capital stock $10,000; to manufacture motors, etc.; incorporators, B. S. Mantz, H. A. Black and John R. Turner.

Stapleton, N. Y.—Autovox Co. of America, capital stock $12,000; to manufacture and sell motor car accessories; incorporators, G. Granata, William Walter and Jules Aubry.

New York—Automatic Fender Co. of America, capital stock $1,000,000; to manufacture fenders for motor cars, etc.; incorporators, William E. McGuirk, Saul S. Myers and William E. Lowther.

Chicago — Automobile Construction Co., capital stock $27,000; to conduct foundry and woodwork establishment; incorporators, Albert T. Graham, H. M. Wells, Wm. E. Fuller and George F. Milligan.

Newark, N. J.—Ignition Mfg. Co., capital stock $100,000; to manufacture motor cars, supplies, etc.; incorporators, Paul G. Roder, Alfred Markowsky and Walter L. Roder.

Camden, N. J.—American Tire Protector Co., capital stock $1,000,000.

Atlantic City, N. J.—Atlantic Perfected Motor Co., capital stock $300,000; to manufacture motors, etc.; incorporators, Frank Brown, Thomas Milcourse, Samuel S. Phoebus and John S. Ingram.

Paterson, N. J.—Eastside Auto Repair Co., cepital stock $20,000; construct and repair motor vehicles, etc., incorporators, Vernon Ettinger, Matthew Weinstein and Chester C. Boggs.

Louisville, Ky.—Wilder Motor Car Co., capital stock $5,000; to engage in general motor car business; incorporators, Oscar Wilder, M. R. Wilder and P. N. Booth.

Akron, O.—Standard Tire Protector Co., capital $50,000; to manufacture tire protectors and rubber goods; incorporators, H. M. Coulter, H. O. Barber, O. J. Bollander, D. J. Koonce and H. A. Lane.

Cleveland, O.—Yale Cycle and Supply Co., capital $10,000; to manufacture, sell and repair motor vehicles of all kinds and to handle parts and accessories; incorporators, C. H. Ferguson, Mrs. Laura A. Ferguson, Edward E. Tompkins, H. S. Jackson and H. E. Tiggle.

Cincinnati, O.—Hayes & Havens Co., capital $15,000; to operate a garage and do a general hiring business in motor cars and motor trucks; incorporators, Gus L. Hayes, George C. Kuhn, C. F. Havens, Louis P. Pink and Leo R. Wise.

Lima, O.—Lima Overland Co., capital $10,000; to deal in motor cars and accessories and to do a garage business; incorporators, Samuel Roeder, Howard W. Pears, George E. Bayley, W. E. Bayley and Leo Roeder.

Zanesville, O.—Zanesville Central Delivery Co., capital $10,000; to do all kinds of delivery with motor trucks and horse-drawn vehicles; incorporators, E. R. Wadley, H. L. Garrett, B. V. L. Slack, William A. Frost and S. H. Sturtz.

The Motor Car Repair Shop

A FEW days ago a motorist who knew nothing about his car except how to drive it and fill it with the necessary oil, gasoline and water, began to experience trouble. His motor did not have the required amount of power. He had a repairman come out from the city to look it over and put the car in good running order again. The repairman did look the car over, but that was about all. He started out by removing the plugs and cleaning them, then he tested the compression and found it very weak in all of the cylinders, and particularly so in the front cylinder. His intentions being good, perhaps, he endeavored to remove the valve cage of one of the valves in this cylinder, and after working in vain for half an hour, he decided to leave the valve in place. A couple of hours then were spent in tightening loose connections, etc., then the rest of the day was required to adjust the carbureter.

At the end of the day the car was turned over to the owner, who took the repairman to the train in the car. On the way to the depot the owner failed to notice any improvement in the operation of the car, but the repairman always had a ready reason why such and such a thing did not work better. The fact of the matter was that the repairman did not come prepared to work, therefore, the owner made an error in expecting him to do so. The owner should simply have asked the repairman to look the car over and if necessary take it to a shop where the proper facilities were obtainable to do first class work.

Whenever possible an owner should take his car to the repairman, and not call the repairman to the car. This for the same reason that one rarely calls a dentist, or a barber to the house. They cannot come without leaving important features of their equipment behind, and when called upon to perform work requiring the use of these features, the work generally is neglected. The best repairman, like the best doctor, is generally the cheapest, too, in the long run.

A Cause of Overheating

It sometimes happens that a motor will develop a disposition to overheat without any apparent cause. Such a case was brought to light recently. The motor had been running beautifully until suddenly, without any apparent reason, the water began to boil out of the radiator, requiring that it be refilled several times a day. The oiler was examined and found to be in good shape and working, and the odor of the exhaust gases was not of a pungent character indicative of an over-rich mixture; the fan also worked nicely, but when a close examination of the water pump was made it was found that a coupling between the end of the pump shaft and the shaft that drives it had been lost, so that the pump was not working. Of course it was only necessary to provide a coupling and the trouble was eliminated.

The hammer in the hands of an unskilled workman often does considerably more harm than good. A workman never should forget to place a heavy object against the opposite side of any shaft or the like that he is about to strike with a hammer. For instance, in driving the starting-crank pin in or out of the end of a crank shaft, there should be a heavy bar of metal bearing upwards against the under or opposite side of the shaft as near the pin as possible when the pin is struck with the hammer. One also should be careful when a hard piece of metal is used to see that a piece of lead, brass or wood is placed between it and the shaft to prevent the shaft from being burred or dented. The same applies to the bearing surface of a shaft. Never strike the bearing surface of a shaft with a hammer, as the surface will be dented, and if the dent is overlooked and not properly dressed down a tight bearing or a broken shaft may result.

It happened recently that a rather careless or inexperienced repairman was called upon to replace a coupling on a water pump shaft, and in driving the key or pin into place he neglected to press some heavy object behind the part of the shaft in which he was driving the pin; the result was that when the motor was started, the pump began to leak very badly. And that was not all; the pump shaft has been bent and of course the bearings became enlarged immediately, so that all that remained to be done was to either get a new pump or a new shaft and have the bearings reamed and bushed. The new pump undoubtedly would be the best and cheapest remedy for the new trouble.

Hint on Skidding

Now that the fall of the year approaches and the weather is apt to be wet and the roads slippery, a few hints on how to prevent or at least retard skidding might be of some use. The most common error of most inexperienced motorists is that when the car begins to skid, instead of releasing the brakes and perhaps applying the power, the brakes are immediately set or more strongly applied. When driving over a wet or sandy country road at a fair rate of speed, the car generally can be straightened up after it starts to skid by keeping the front wheels pointed in the desired direction or straight ahead and immediately applying as much power to the rear wheels as possible. When driving in the city on a smooth, wet asphalt pavement, one's only chance for safety lies either in the use of chains or in approaching all crossings with care. Above all things, should a quick stop be necessary, apply the brakes gently, very gently, so as not to loose the little traction or grip that the rear wheels may have on the road surface.

Fitting Bowden Wire

Where bowden wire is used in the controlling devices of a motor car, difficulty is often experienced in fitting or repairing it, especially when it has to be cut. The inner cable should be thoroughly soldered before it is cut, as it is made up of a number of fine strands, which will be pretty sure to become untwisted unless they are solidly connected. A pair of pliers will be sufficient for cutting the smaller sizes, but a file or cold chisel will be necessary in cutting the larger sizes of cable.

When the mechanism comes from the makers there is a brass nipple supplied which should be carefully attached to the end of the inner member. The best way to do this is to pass the wire through the nipple, the end being nipped flat for about 1-16 of an inch back. The latter precaution will prevent the wire drawing out again during the process of soldering. Fasten the nipple in a vise and solder with a non-corrosive soldering fluid, making sure that the soldered joint extends the full length of the nipple.

To insure prompt action when a single-pull lever is used it is necessary to have a spring at the opposite end to which the lever is attached. The spring may be made to either pull the inner cable back through the outer member, after the operating lever is released, or it may be inserted between the stop holding the outer member and the end of the inner cable. In the latter case the spring will of course be in compression and it will generally be found that the simplest method of attaching it is to install the device without the spring and to wind the latter on afterwards, just like a key is put on a split key ring.

It is necessary to be careful that the inner cable on leaving the stop to which the outer member is attached is kept in a straight line, as unless it is straight it will be worn by rubbing on the stop. Before the cable is passed through the outer portion it should be covered with grease to keep it from binding.

To Stop a Spring Squeak

Squeaking springs are usually due to the working of the leaves upon each other and can be remedied in a very easy manner. Jack up the body of the car so that the weight is off the springs and then introduce between the leaves a mixture of flake graphite in a light oil or even kerosene. The oil serves to float the graphite to the place where it will do the most good and the small particles of the graphite become imbedded in the rough surfaces of the leaves and usually effect a permanent relief.